THE BUILDER

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ARCHITECT & CONSTRUCTOR

VOL. CLVII DECEMBER 29 1939 No. 5056

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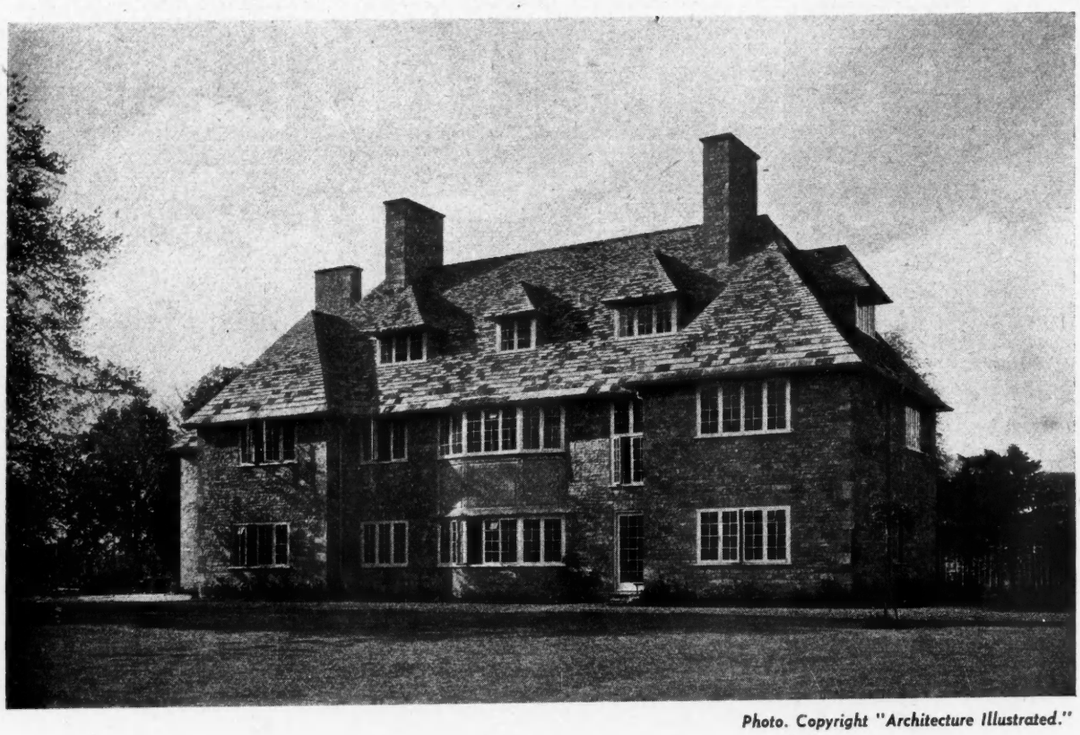

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"BERRY LEAS," NEW ELTON
THE LATE SIR GUY DAWBER, R.A., ARCHITECT

OLD Northampton stone was used for the building of the external walls, and its weathered condition has given the mellow appearance that is the exclusive product of age. The old-time builders of such walls used to strap them on the inside with wood battens to which laths and plaster were applied. This kept the dampness out of sight, but it was no remedy in the proper sense; the danger to health that remained was the greater because it was not suspected. The modern method is to use waterproofed cement mortar, made with sand, cement and 'PUDLO' Brand waterproofing powder, for the undercoats of the internal plastering to all outer walls. A skimming coat of lime putty and sand, gauged with a little Plaster of Paris, prevents condensation, and provides a good texture when left from the wood float. This is how the work was done at "Berry Leas" and many other important buildings. It is economical and permanent, and the finished thickness is no greater than that of ordinary plastering.

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THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

Vol. CLVII DECEMBER 29 1939 No. 5056

CHAPTER'S END

IF these last few days of 1939 cannot truly be termed *fin de siècle*, they have at least something of the same flavour of expectancy and impatience in regard to the future which characterised the closing years of Victoria's reign. To-day the last page is being turned of a chapter covering a period of twenty years in which conditions of life in general and of architecture in particular have been shaken out of the quiet ways into a maze of tracks comparable only with Clapham Junction.

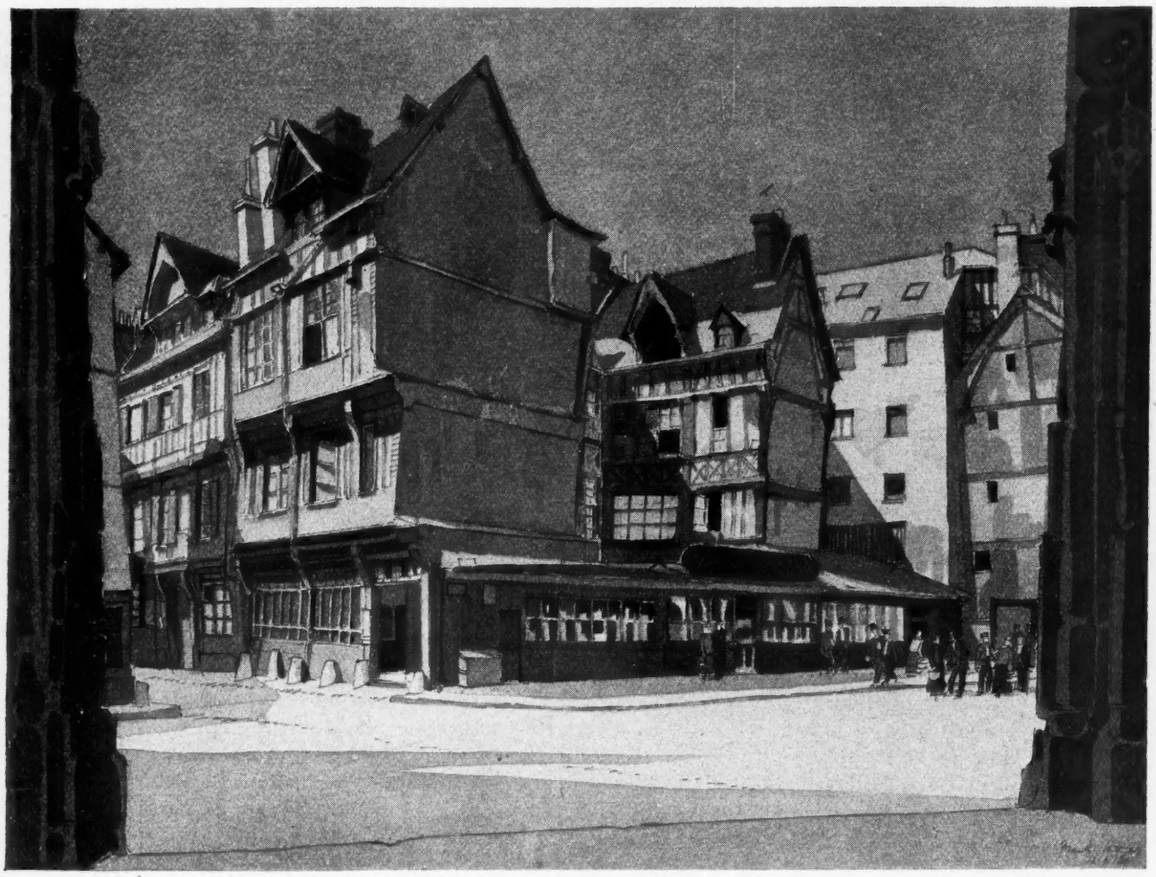
Particularly has architecture suffered by the war, for its practitioners had shown their ability to exercise a self-imposed restriction upon the embarrassing degree of liberty granted them under post-1919 conditions. In those twenty years the art had begun to rise above the economic conditions which had demanded, as primary qualifications of the building craft, speed of erection and cheapness of construction. Until September, in fact, architecture was once again in partnership with structure.

Building, during this period, has not been so fortunate. Its struggle was not to surpass the traditional, national building skill but to seek to maintain it in the face of increased competition from a new race of constructional *entrepreneurs*, of clients' demands for price and time often surpassing the reasonable, and of new technique and fresh processes arising from the development of a host of new equipment and *ersatz* materials. Master builders and operatives alike have suffered by these changes, and for each of these there could be some small consolation if the present period of inactivity enabled research efforts to be collated into a standard building technique. What an opportunity occurs here for those manufacturing firms that are benefiting from the war to apply some of their excess profits to undertaking such research!

It is difficult to resist speculating into the future in regard to that time—soon to come, as we all hope—when the arts of peace again become pre-eminent. Idle though it may be, we all know that it is only such speculation that keeps sanity alive in the majority of architects—who may now be found working at many trades except that for which they were reserved. One such matter for discussion among architects who are trying to keep their dwindled practices going is the chance for private practice after the war.

No question is more difficult to answer than this, for it would seem to be principally dependent on the economic condition of the nations at the end of hostilities. Economic insecurity brings with it inevitably co-operative or merging movements of industry, and staff architectural departments are a natural result. Any preponderant movement in this direction would mean virtual extinction for the private practitioner except where he has been able to establish himself as an expert in a particular field. In stating that this would be a profound tragedy, we do not overlook the rapidly improving standard of staff and "official" work but state our belief that the art of architecture is best served by the existence of both groups, the private architect to blaze the trail and the staff architect to consolidate the ground won, though this order of things, like most generalisations, is capable of reversal. It may be that difficult days will lie ahead for the R.I.B.A. to reconcile those seemingly divergent interests, but of the necessity to achieve reconcilement there can be little doubt. The need for the Institute, and for wise and just counsels within it, can only be strengthened by the time of trial through which we are passing.

For the most part, however, the principal hope for the private practitioner's future lies, we think, in such a just solution of Europe's difficulties that a basis of peace may be established that shall renew in the investing public that confidence in the permanent values attaching to bricks and mortar which has been one of the great steadying economic influences of the twentieth century.



OLD HOUSES, ROUEN.

From a Water-Colour Drawing by Mr. H. Frank Hoar, B.A., A.R.I.B.A.

NOTES AND NEWS

An Arts Lecture Group.

An interesting development in the educational world since the outbreak of war has been the formation of a lecture group of young art historians, under the ægis of the Courtauld Institute of Art, University of London. This group consists of about a dozen men and women, all specialists in their particular branch, and though young enough to have maintained their enthusiasm (the average age is probably not more than thirty), all have had considerable experience in art education.

The range of the lectures is very wide, and deals with every period from the Middle Ages to the present day. To suit the needs of various study groups, the lectures are divided into three sections. The elementary lectures deal with the meaning of architecture, painting, sculpture, the life and art of various periods, and the art history of particular localities. The more advanced courses cover much the same ground, but in a more detailed manner. There are also specialised courses for those who wish to study the art of the Renaissance, the Baroque and other periods throughout their development in the main countries of Europe.

Full particulars of the lectures may be obtained from the Secretary, Courtauld Institute of Art, 20, Portman-square, London, W.1.

District Surveyors under the London County Council.

In accordance with the provisions of the London Building Acts (Amendment) Act, 1939, district surveyors will become officers of the Council from and including January 1 next, and the fees at present payable to them will be payable to the Council. District surveyors will be graded in three divisions with salaries as follow: Grade I, £1,200—£75—£1,500; Grade II, £1,000—£50—£1,200; and Grade III, £800—£50—£1,000. Conditions of employment are now published by the Council.

The number of district surveyors entering the Council's service under the agreement is 38. There are at present four vacancies for district surveyors, and a further vacancy will arise on February 1 next. These have been filled by the appointment of Mr. D. D. J. Clarke, B.Sc., A.M.I.Struct.E.; Mr. P. T. Dean, B.Sc., A.M.Inst.C.E.; Mr. P. S. Dixon, A.R.I.B.A., P.A.S.I.; Mr. S. G. Skrimshire, P.A.S.I.; and Mr. J. W. Whittaker, B.Eng., A.M.I.Struct.E. The fixed staff of district surveyors stands therefore at 43.

R.I.B.A. Medal Award, West Yorkshire.

Messrs. Gribbon, Foggitt and Brown, FF. & A.R.I.B.A., of Park-place, Leeds, have won the R.I.B.A. Bronze Medal for the West Yorkshire Society's area with their design of St. Augustine's Roman Catholic Church, Harehill, Leeds. The church was opened in 1936. This is the second time the firm has won this medal (awarded every four years), the first award being in 1931 for the design of the Yorkshire Penny Bank building at the corner of Shire Oak-road, Headingley.

Building Industry Council Formed for Irish Free State.

The National Council of the Building Industry has been formed in Dublin by the following bodies: the Royal Institute of the Architects of Ireland, Institution of Civil Engineers of Ireland, Chartered Surveyors' Institution (Eire branch), Federation of Builders, Contractors and Allied Employers of Ireland, Associations of Builders' Providers, and Irish Trade Union Congress Its objects are: to consider all problems affecting the undertaking of building projects and generally to advise measures to adapt the industry to war circumstances; to investigate the availability of materials and prices, and to urge upon the Government, public bodies and the public generally, the importance, from the national point of view, of encouraging the undertaking of building projects and public works during war time.

Housing Work in Scotland: Proposed Conference.

The Scottish Council of the Building Trade Operatives' Federation is asking the Government for a conference to consider proposals for the resumption of work on housing schemes, particularly in areas where A.R.P. activities are not so marked as in large towns. It is suggested that the Government should release timber supplies for housing schemes that are being built of natural freestone.

Aberdeen's Gateways: New Bridge to be Completed.

The new bridge over the Dee at Allenvale, Aberdeen, is to be completed, but the scheme for the widening of the Bridge of Don has been postponed till the end of the war. That is the net result of negotiations regarding bridge and road work between the representatives of the Aberdeen Town Council and the Ministry of Transport. Preliminary work for the construction of the bridge at Allenvale was begun in May of last year, and the work is already well ahead. It is expected that it will be completed in the course of next year. The cost of the bridge is about £120,000. The approach to the bridge from the Stonehaven road will also be completed, and the bridge is already linked up with the centre of the city by the recently completed Great Southern-road.

The Building Centre: New Chairman and Directors.

Sir Giles Gilbert Scott, R.A., has joined the board of directors of the Building Centre and has become the chairman in the place of the late Maurice Webb. Others who have also joined the board are Sir Alfred Hurst, K.B.E., C.B.; Oswald P. Milne, F.R.I.B.A.; Thomas S. Tait, F.R.I.B.A.; D. L. Bridgwater, A.R.I.B.A.

Institution of Electrical Engineers: Resumption of Meetings.

The Council of the Institution of Electrical Engineers have decided to resume the meetings of the Institution in London during the second half of the session if the present conditions continue. The decision applies to the ordinary meetings, informal meetings, meetings of the three technical sections and of the London students' section. Programmes for each class of meeting are now being drawn up.

A purely formal ordinary meeting will be held in the Lecture Theatre, Savoy-place, W.C.2, on Thursday, January 11, at 12.30 p.m., while the first ordinary meeting of the programme for the second half of the session will take place on Thursday, January 25, at 6 p.m., when there will be a discussion on "Fire-fighting Equipment for Electrical Installations."

The Air Raid Protection Institute: Change of Address.

By an order of the London County Council, Wood-street, Westminster, is to be incorporated with and under the name of Great Peter-street, as from January 1, 1940. On and after that date the address of the Air Raid Protection Institute will accordingly be 2, Millbank House, Great Peter-street, London, S.W.1. (Telephone: Whitehall 9227.)

The Replacement of Sandbagging by Concrete Blocks.

On Home Office instructions, sandbagging carried out in the early days of the war is to be replaced, where considered necessary, by hollow concrete blocks filled with sand.

Timber Control: Ministry of Supply Announcement.

The Minister of Supply has made the Control of Timber (No. 6) Order, 1939, which amends the No. 5 Order by substituting £5 in place of the £20 mentioned in the No. 5 Order—i.e., the new Order provides that on and after January 1, 1940, the amount of timber, plywood and box boards which (subject to declaration) may be purchased without a licence may not exceed £5 in any one calendar month.

The Minister of Supply further announces that on January 1 the Control of Timber (No. 5) Order, 1939, Direction No. 2, will be revoked by the Control of Timber (No. 5) Order, 1939, Direction No. 3.

Under Direction No. 3 sellers will be required to return to the appropriate Timber Control Area Officer within seven days of the end of the calendar month to which the forms relate, the forms "O.A." (i.e., declaration by purchasers) as well as forward statements on the form "O.C." of disposals during each month.

Forms described as O.B.1 and O.B.2 in the Direction No. 2 are no longer required.

Glamorgan County Architect: An Appointment.

Mr. John Williamson, A.R.I.B.A., deputy architect to the Glamorgan County Council, has been elected county architect to succeed Mr. James Nash, who is retiring. Mr. Williamson, who has been with the County Council since 1912, is a Fellow and member of Council of the South Wales Institute of Architects, and was chairman of the Central Branch from 1933 to 1935. He is an honorary lecturer on modern architecture to the Welsh School of Architecture.

Professional Announcements.

Messrs. Lanchester, Lodge and Davis, FF. & A.R.I.B.A., have now returned to their London office, 19, Bedford-square, W.C.1. (Telephone: Museum 0846.)

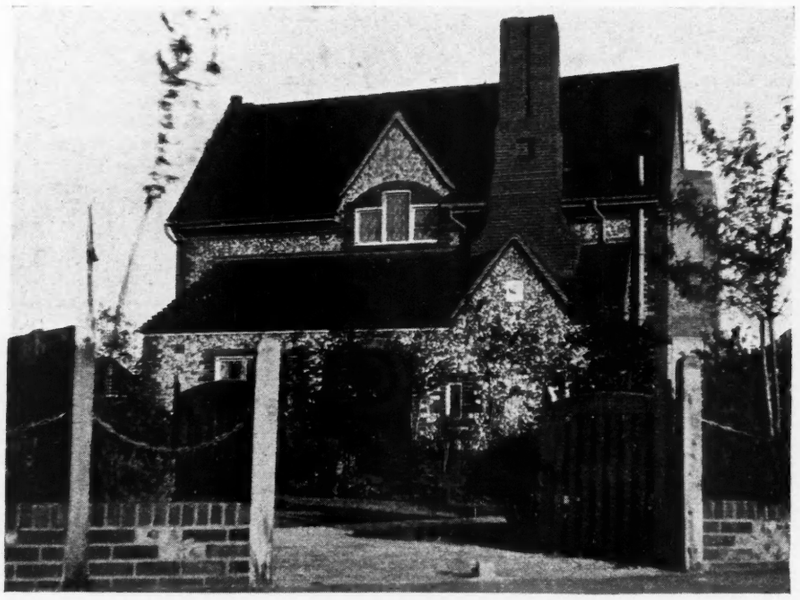
Messrs. Evill and Hadland, surveyors, of 21, Tothill-street, Westminster, S.W.1, announce that they have closed that office and dissolved partnership as from Christmas. For the duration of the war Mr. G. H. Hadland will continue practice as a quantity surveyor at 144, Melfort-road, Thornton Heath, Surrey.

THE USE OF FLINT IN ARCHITECTURAL DESIGN

BY C. D. HAWLEY, F.R.I.B.A.

In some districts where the subsoil is of chalk it is usual to find a plentiful supply of flints of varying sizes which can be successfully used for building purposes. The suitability of this material was recognised centuries ago, and this accounts for the large number of flint houses which are to be seen in many parts of the country, especially in the Eastern Counties. Many of these are of very attractive appearance, the flintwork showing to great advantage, particularly where it is combined with an artistic employment of brickwork at the angles, etc.

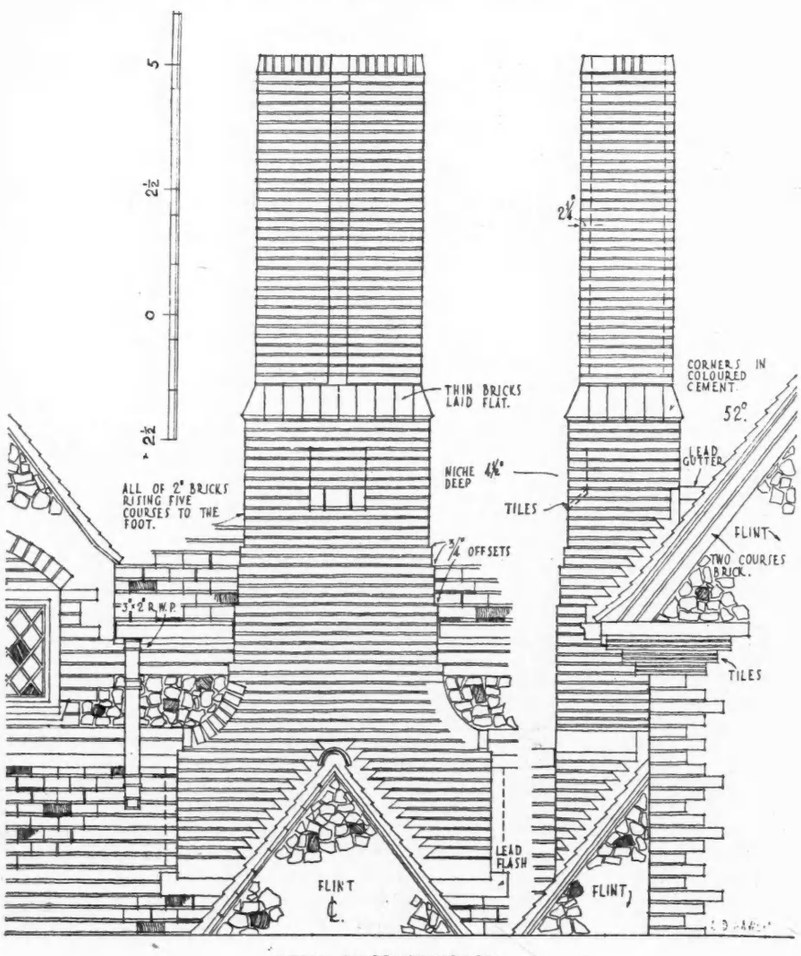
This method of construction has much to recommend its use in comparison with other more commonly used facing materials. In the first place, the material lies ready to hand, is inexpensive, and apart from its extreme durability there are the added advantages of resistance to damp and disintegration by frost. Æsthetically, there can be no doubt as to the possibilities of flintwork. The writer has seen several beautiful examples in various parts of the country where its use is the more appropriate as being characteristic of the locality in question.



A FLINT-BUILT HOUSE, SURREY. MR. C. D. HAWLEY, F.R.I.B.A., ARCHITECT.

It is a sound principle, though seldom recognised in practice, that architectural effect is always enhanced by the employment of local materials. The principle is, of course, exemplified in a very marked degree in the Cotswolds, where the stone found in the immediate locality has been so extensively used as to impart a unique character to the buildings of that particular neighbourhood. One of the most beautiful villages in England, Bibury, in Gloucestershire, derives practically the whole of its charm and attractiveness from the artistic use of local material.

In many parts of East Anglia the geological formation affords an almost unlimited supply of flint which has accordingly led to its use on a lavish scale for buildings of all kinds. In no instance, however, is it to be seen to greater advantage than in the old parish churches. In the north-west corner of Suffolk, in the district known as Breckland, the trade of "flint knapping" was carried on for generations, but this has unfortunately died out of recent years owing to lack of demand. The process of flint-knapping, by means of which the flints are split into sections to provide a more or less even surface for wall-facing, demands considerable skill, and this art attained to a very high degree of perfection in north-west Suffolk. One of the finest examples of East Anglian flintwork is to be seen at Mildenhall, in the tower of the parish church. Here the large masses of wall surface between the stone dressings exhibit the art of the flintworker with remarkable effect, and the observer cannot but be deeply impressed by the fine and massive character of the construction.



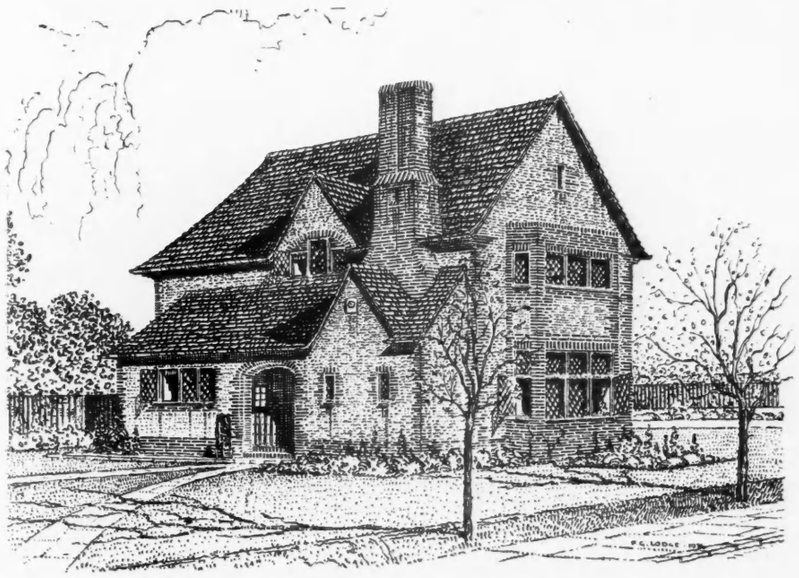
DETAIL OF CONSTRUCTION.

In most of the older examples the wall was built almost entirely of flints, the interstices being flushed up with mortar as the work proceeded. This would obviously necessitate a wall of considerable thickness, with resultant lack of economy of both material and labour. A more satisfactory method would be to build the wall with a backing of brickwork in cement, the outer 4½-in. or 6-in. only being constructed of flint. In such case it would be an advantage to build the brick backing with bonders projecting at intervals into the flintwork. This would ensure a more secure bonding of the two materials composing the wall, and thus tend to greater structural stability. An alternative method is to build the wall substantially of brickwork, leaving only a thickness of 1½ in. for the flint facing to be afterwards applied to the brickwork on a backing coat of cement and sand. Each flint would require to be separately bedded and pointed up in cement until the whole surface is covered.

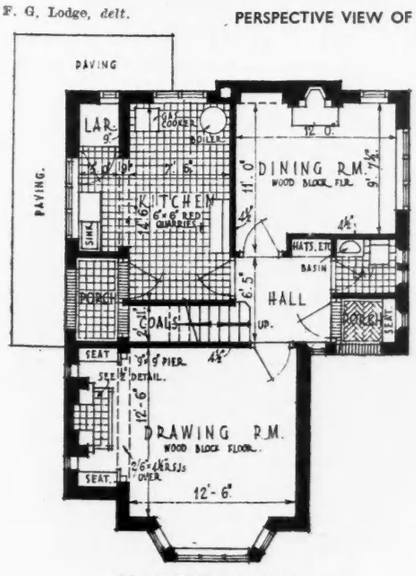
Whichever method is adopted, it is advisable to build the plinth to a height of not less than 18 in. above the ground level. This can be appropriately finished with a course of brick on edge projecting ⅜ in. in front of the general face of the flintwork. The design would undoubtedly be improved to a certain extent by the use of 2-in. bricks for the quoins, window-jambs, etc. The 2-in. brickwork should be built in courses of five to every foot in height. The angles are best treated with

variously extended courses, so as to present an irregular appearance on face in order to avoid the hard mechanical effect produced by regularly arranged alternate courses. A fairly dark variegated cherry red brick is best for the purpose, as this affords an agreeable contrast to the bluish-grey colour of the flint facing. If, as shown in the illustration below, the four-centred Tudor arch is employed over doorways and other openings the design will accord more fully with æsthetic requirements and the traditional character of the style.

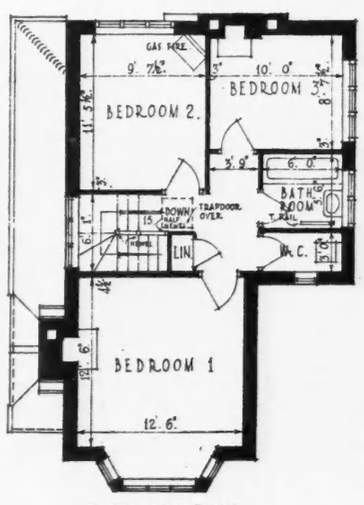
The flint house illustrated was designed some four years ago for an elevated corner site in a Surrey town. The principal elevation faces south-west. The external walls are of brickwork 9 in. thick, with a facing of cut flints and dark red brick dressings to the quoins, windows, etc. The roof is covered with dark brown hand-made tiles. Window frames are of wood with standard metal casements. The accommodation consists of two reception rooms, kitchen, scullery, three bedrooms, bathroom and separate w.c. An ingle-nook is provided in the drawing-room, with a large fireplace constructed of 2-in. bricks, oak side benches and solid oak beam and posts. The windows have diamond-pattern leaded glazing.



F. G. Lodge, *delt.* PERSPECTIVE VIEW OF FLINT-BUILT HOUSE.



GROUND-FLOOR PLAN.



FIRST-FLOOR PLAN.

BOOK REVIEWS

List of Antiquities in the Administrative County of Surrey. With a General Introduction and Photographic Illustrations. Third Edition. Surrey County Council, Kingston-upon-Thames. 1939. Price 5s.

No Home County, with the possible exception of Middlesex, has suffered more than Surrey from the "development" which has taken place within recent years. At the end of what we now have to refer to as "the last war" there was little continuous development beyond a radius of about eight miles from Charing Cross. Within the intervening 21 years the tide of Greater London has swept steadily outward, swallowing up numerous towns and villages, until it has now become necessary to pass through 15 or 16 miles of bricks and mortar to find anything like unspoiled country. As a consequence of this spate of building, many old estates have been broken up, and many fine old houses and landmarks of interest have disappeared. Notwithstanding, a large number of antiquities still remain, as is shown by the book under notice, and we are glad to observe that the Records and Ancient Monuments Committee of the Surrey County Council is doing everything in its power to ensure their preservation.

The book is a little masterpiece of compression, surveying, as it does, the topographical history of Surrey from prehistoric times up to 1800. The introductory chapters, though brief, are extremely informative and display an expert knowledge of the subject. The text, except for the notes on Earthworks and Roman Sites, is the work of Mr. C. D. Hawley, F.R.I.B.A., who has brought an intimate knowledge of the architectural features of the county to his task, duly acknowledged by Mr. W. Scott Henderson, Chairman of the Records and Ancient Monuments Committee. The book includes not only extensive lists of surviving antiquities, arranged alphabetically under towns, but more than 40 excellent photographic illustrations of notable buildings, etc., with descriptive notes, reproductions of old maps and a county map showing divisional areas. The book is admirably produced and forms an excellent introduction to the county's many architectural and other attractions.

"Country Life" Book of Small Houses. Edited by Roger Smithells. (London: *Country Life.*) Price 3s. 6d.

This book is intended primarily to help people of moderate means faced with the problem of building a home. Most people in this country live in houses costing £1,000 or less. The volume illustrates some 29 houses by well-known architects. The treatment of the houses is varied in style, and illustrations are from excellent photographs and clear plans, with the cost of each building appended. One small criticism is that a number of plans have no scale or figured dimensions. A chapter on lighting, heating, furniture, etc., is included.

"The Standard Form of Building Contract" (1939), being a critical annotation of the new form and guide to its use. By Derek Walker-Smith, M.A., Barrister-at-Law, and Howard A. Close, M.A., Solicitor. (London: The Federated Employers' Press, Ltd.). Price, 10s. 6d.

This is a critical annotation and guide to the new Standard Form of Building Contract drafted by the Joint Contracts Tribunal of the R.I.B.A. and the National Federation of Building Trades Employers. This body has been at work during the last eight years, and since the publication of the 1931 R.I.B.A. Standard Contract, receiving criticisms and suggestions of that form of contract. The 1939 Standard Form is the result of their labours.

The book sets out the most recent Standard Form in two parts, namely, Part I, the form applicable where quantities form part of the contract, and Part II, the Form applicable where quantities do not form part of the contract. Also, there appear the suitable forms of each for the use of local authorities.

The conditions of the respective contracts are set out with full notes by the learned authors, and these indicate that the authors are well able to expound the several conditions and their implications. Furthermore, the book sets out in small type both the 1909 and 1931 Standard Forms, which can therefore be compared with the current one. In all, it is a most useful publication for architects, builders, local authorities or other contracting parties. There is also a foreword by Mr. Justice Hallett and a preface by the Chairman of the Joint Tribunal, Mr. Sydney Tatchell, F.R.I.B.A. W. S.

COMPETITION NEWS

New Civic Centre, Margate.

Mr. A. F. B. Anderson, F.R.I.B.A., S.A.D.G., assessor in the competition promoted by the Margate Corporation for a new civic centre on a site overlooking Hartsdown Park, has made the following awards:—

1st (£500): Messrs. Lionel Smith and James Melvin, AA.R.I.B.A., 37b, Connaught-street, W.2.

2nd (£300): Mr. J. C. Shepherd, F.R.I.B.A. (Scott, Shepherd and Breakwell), 11, Buckingham-street, W.C.2.

3rd (£200): Messrs. Vine and Vine, AA.R.I.B.A., 7, Southampton-place, Bloomsbury-square, W.C.2.

The following designs were commended (in order): Sir John Brown, Henson and Ward, 83, St. Giles-street, Northampton; and Mr. Wm. G. Sinning, A.R.I.B.A., 27, Queen Victoria-street, E.C.4.

A.R.P. IN CATALONIA

DISCUSSION ON SENOR PERERA'S PAPER.

FOLLOWING the reading by Senor Ramon Perera (Chief A.R.P. Engineer to the Government of Catalonia during the Spanish War) of a paper on "A.R.P. in Catalonia" to the Air Raid Protection Institute,* a discussion took place.

MR. G. R. FALKINER NUTTALL, M.A., A.M.I.C.E., said that there were four points he would like to deal with briefly: the first one was that it was quite clear that frame structures were really of tremendous value when we came to the survival of buildings. Another point that came out with the pictures was that the destruction by blast was very considerable from the point of view of windows and doorways. As the lecturer had pointed out, the roofs and floors in Spain were of fireproof construction and pretty strong, and therefore they did not usually collapse, the blast following the line of least resistance; but in Great Britain the roofs were pretty weak, and he (the speaker) thought the blast would also raise the roof, and we should be faced with the serious problem of people being rendered homeless.

He (the speaker) thought there was no reason to say that the sandwich construction was the only one. He thought that we could very often say that the reinforced concrete building was as good. Actually, that was the practice in France, and he had spoken to many of the engineers and also to the Army officers who were in the forts of Verdun when it was being shelled, and they had not actually suffered from the effects of concussion.

In this country we were following the sort of splinter-proof policy which, of course, would save an enormous number of lives, but we had got to be careful. We were adopting it too far. We were building splinter-proof structures and were building them very large, and instead of people remaining dispersed we were bringing them together in large numbers into one spot, and that was exactly what was most desirable from the point of view of the bomb; he felt that where we concentrated people we ought to have a high degree of protection.

MR. C. HELSBY, M.I.Struct.E., said that we were faced with a big number of anomalies in this country, in that it would appear that the policy that we were following was one of dispersal, yet as Mr. Falkiner Nuttall had pointed out, we were congregating people together in shelters that were merely death-traps should they get hit. Now Mr. Perera had shown shelters for 800 and 1,000 people that had been protected, and he stated that the last consideration was one of cost. In England we thought more of cost, on any subject, than any other point.

The Government allowed us to spend £4 a head on splinter-proof protection of 13½-in. walls with a 6-in. thick roof; the roof was not strong enough to keep out either a dud shell or even the tail-end of a shell. Yet in the Trafalgar-square shelters that £4 had to be spent because there were entrances for every 50 people; we had £2 for an ordinary shelter, that was £1 per person per entrance. We had to have that entrance which only allowed 50 people to go in, but if the shelter were made twice as wide it would probably take 200 at the same time, and twice the cost would not be involved in making it twice as wide; probably another third extra was all that would be needed for it. Yet we must have all the emergency exits and we must make very elaborate lavatory arrangements, costing probably another pound, leaving a pound for the shelter proper, so there was no money left for the roof at all; it was only 6 in. thick and it could not be made any thinner or the water would come through. Now if we put, say, ten shelters side by side for 50 people we should find that we had got about five times as much walling as we needed, and, incidentally, about three times as much walling as roof, so that if we took the walling and put it on to the top of the roof we would give ourselves a logical protection where it would do more good, and we should not have involved ourselves in any more cost, but even that was not good enough to keep out bombs. He had designed and carried out an air-raid shelter that would keep out the bombs that we were likely to get in this country; it had cost as low as £6 3s. per head for 1,130 workmen. Recently, the management of that concern had pointed out to some Government officials who were visiting it that the people who were leaving the works gate were worth £6 3s. a head with that management, because if the people were killed, production would stop; but as soon as they got through the gate they were only worth £4 to the Government. Even hard-headed business men thought that £2 3s. was worth paying. When we subtracted the rescue squads that were needed and the cost they and the ambulance arrangements involved, we should find that we were saving more than £2 3s. a head; therefore, if we spent the money on the shelters we should not need to spend it on a constant dissipating cost.

MAJOR NOEL MACROBERTS, D.S.O., M.C., speaking on the question of trenches, said that the dimensions were 4½ ft. wide by 50 ft. in length. If a bomb dropped was going actually to make a direct hit at a thing like that, it was going to be very bad. There was the question of the damp and the water that had got in, but that again varied, and was the engineer's responsibility. In regard to the Anderson shelter, it did conform to the principle of dispersion that Mr. Perera had spoken of. In certain cases those shelters were being allowed to get damp, but it was up to the individual owner of the shelter to keep it dry.

The Effects of Concussion.

MR. R. COTTERELL BUTLER, A.R.I.B.A., said that the lecturer's example of the direct hit of a bomb on a temporary shelter containing 28 people at a short distance from the point of explosion made extremely interesting data, and asked if the lecturer had other examples where the entrances to shelters were at short distances from the point of explosion and had very little screening between them, and in which people protected from splinters appeared to suffer no damage whatever.

MR. A. H. MOBERLY, F.R.I.B.A., thought it very important to bear in mind that supposing the Government was going to spend a particular sum of money on giving protection to the public the money could clearly be spent on giving a shelter with a greater protection against bombs, but could alternatively be spent on aeroplanes, fighter machines, a balloon barrage, or in a great number of different ways, and he was extremely sceptical as to whether there was anyone in the room who had sufficient knowledge of all those different sides of the problem to know on which of those different things that sum of money was best spent. He thought that it was very important that people should not go away with the assumption that it was generally agreed that we were being given very little protection, when we might for one or two pounds per head extra be given first-rate protection.

MR. PERERA, in reply to these and other points, said that with reference to the effects of concussion on people inside a shelter, he was able to state quite definitely that in the case of an above-ground concrete shelter which was hit by a bomb, the only physiological effect on the 28 men sheltering in it was that of a temporary deafness. As to the transmission of concussion through the concrete, he had in his paper emphasised the mechanical effects of this on the construction, to which serious damage could be caused; but the effect of such concussion on human beings had a completely different aspect. The air concussion transmitted from the inside surfaces of the shelter to the air and through this air to the people did not possess the qualities of a sharp high-pressure wave.

In the case of buildings adjoining, a bomb dropping in one of them produced a concussion which could be transmitted to the walls and structure of the neighbouring building, according to the transmission power of the materials; but, generally speaking, those mechanical effects did not produce ill consequences to the people when transmitted from some distance. As an explanation, he would suggest that, in spite of the vibrations being of a different order in frequency and amplitude, some comparison could be established with earthquake waves, which, whilst doing tremendous structural damage, were quite well resisted by human beings. Greater physiological effects must, however, be feared from the direct sharp front wave of the blast in close vicinity to the explosion and with little screening protection.

They would appreciate that the question [asked by Colonel F. H. Smith] regarding shelters for blocks of flats could not be answered in the form of a general solution for every case, each case requiring a deep study. But as a general impression he could say that the blocks of flats usually built in England had a great advantage over those normally built on the Continent in that they were practically independent each one of the other, leaving open spaces between them, making it possible in this country to find a suitable place to build the shelter in close vicinity to the building.

* Reported in *The Builder*, December 15.

ARCHITECTS' REGISTRATION COUNCIL

THIRTY-FIRST ORDINARY MEETING.

THE thirty-first ordinary meeting of the Architects' Registration Council of the United Kingdom was held on December 15, at 66, Portland-place, Mr. Sydney Tatchell in the chair.

The minutes of the previous meeting having been adopted, reports of committees were considered.

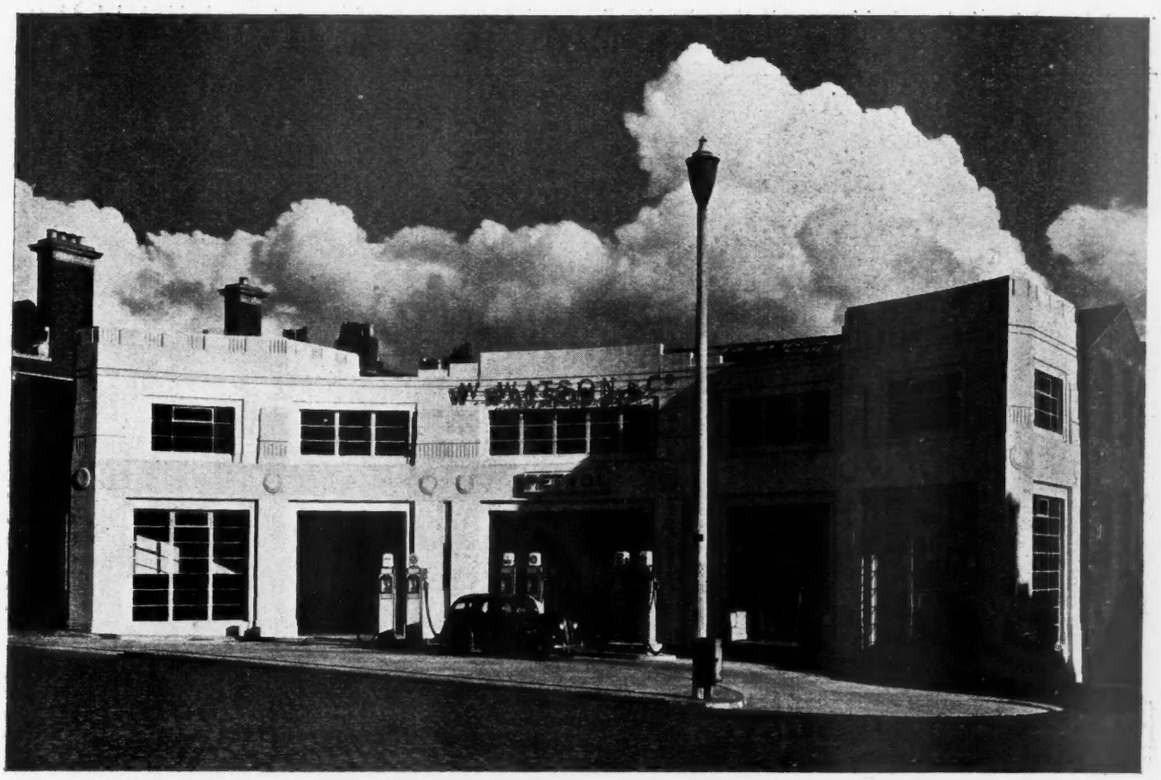
THE ADMISSION COMMITTEE recommended the appointment of Mr. W. E. Brooks in place of Mr. Naseby Adams (resigned). This was approved unanimously. Two hundred and seventeen new applications for admission were approved, 46 under Section 2 (1) of the 1938 Act; 143 under Section 6 (1) (d) of the principal Act; and 28 under Section 6 (1) (c) of the principal Act. Twenty-one applications were rejected. There are now 12,622 names on the Register. Up to December 8 there had been 3,016 applications for registration under the 1938 Act and Regulation 26 (2).

BOARD OF ARCHITECTURAL EDUCATION.—The present panel of examiners, with Mr. Darcy Braddell as chairman, was re-elected for the coming session.

FINANCE AND GENERAL PURPOSES.—The Discipline Committee, referring to a resolution taken at the last meeting to publish in the Press the name of a registered architect, stated that the case had received wide publicity in the Press, but without the name of the architect being mentioned. It was agreed that, in order that the procedure to be followed in future should be definitely settled, the solicitor be instructed early in the new year to take counsel's opinion on the general question of the publication of the reports of the Discipline Committee in the Press, in relation to the possibility of proceedings for libel arising therefrom.

It was reported that a voters' list of "Unattached Architects" had been compiled, to the number of 3,394, and that the "Unattached" would in future be entitled to seven representatives on the Council.

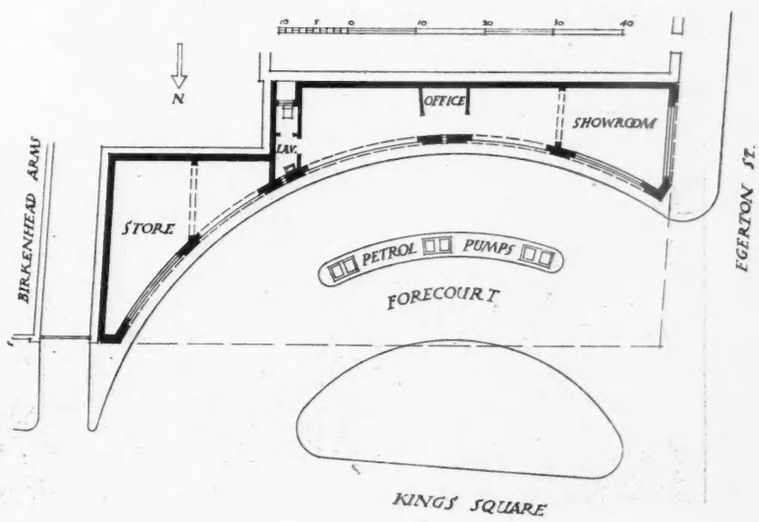
In a discussion on the accounts, it was agreed that the committee should go into the possibility of avoiding bank charges by having retention fees paid direct to the Registrar's office. One hundred and sixty-nine persons had had their names removed from the Register during 1939 for failure to pay their retention fees.



VIEW FROM CORNER OF KING'S SQUARE AND EGERTON STREET.

A PETROL FILLING STATION, KING'S SQUARE, BIRKENHEAD

THE building faces the entrance to the Mersey Tunnel, and the problem was a difficult one owing to the slope of the ground and the want of depth to the site, Ancient Lights, etc. The curve of the building had to comply to a radius of 56 ft., so that large vehicles could run into the forecourt and also over the narrow side street at the right-hand side and get back into the square. The forecourt, therefore, takes up a good proportion of the site, as shown on the plan. The plan allows for a possible extension to the rear, and the canopy to pumps has not been carried out meanwhile. The height of the façade had to conform with adjoining buildings. The building complies with the Model By-laws with respect to Petroleum Filling Stations embodied in the Town and Country Planning Act. The name of the firm had to be in small letters only and no advertisements were allowed. The general contractors were: Messrs. R. Myles, Ltd., Liverpool, and the following were the sub-contractors: steel sashes, Rowe Bros., Ltd.; reinforced concrete work, Trussed Concrete Steel Co.; plasterwork, J. B. Johnson & Co.; roofing tiles, Turners Asbestos Cement Co.; and sanitary goods, Baxendale & Co.



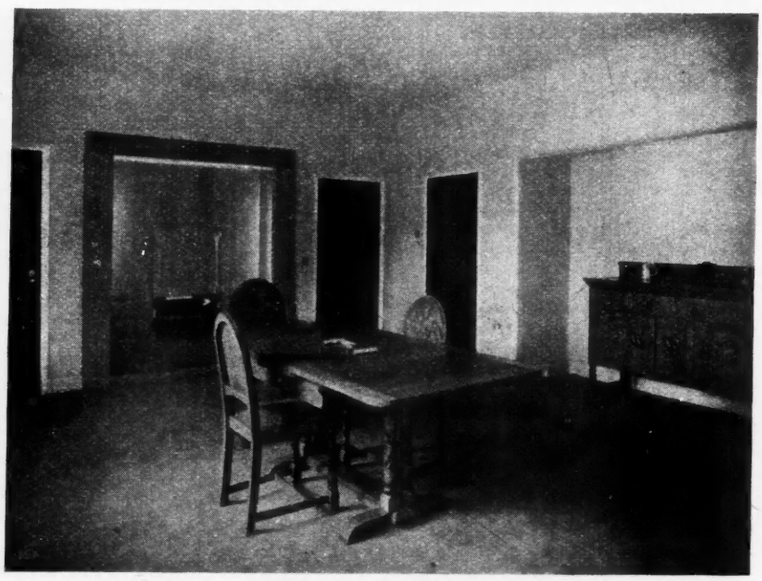
GROUND-FLOOR PLAN.

MR. D. A. BEVERIDGE, F.R.I.B.A., ARCHITECT.

"ARDVRECK": A HOUSE AT PRIORY CLOSE, STANMORE, MIDDLESEX.

VIEW FROM SOUTH-WEST.

THE HALL.



THE DINING-ROOM.

SITE.—The house, designed for Mr. D. H. Murray, is situated at the top of Stanmore Mill, and has fine views to the south.

CONSTRUCTION.—The foundations are reinforced concrete. External walls are built with a cavity and have a facing of multi-colour sand-faced bricks, 2 in. thick, rising five courses to the foot, laid in Flemish garden wall bond, with one snapped header to every three stretchers. The walls of the ground floor have a 9-in. inner skin and those of the upper floor a 4½-in. inner skin.

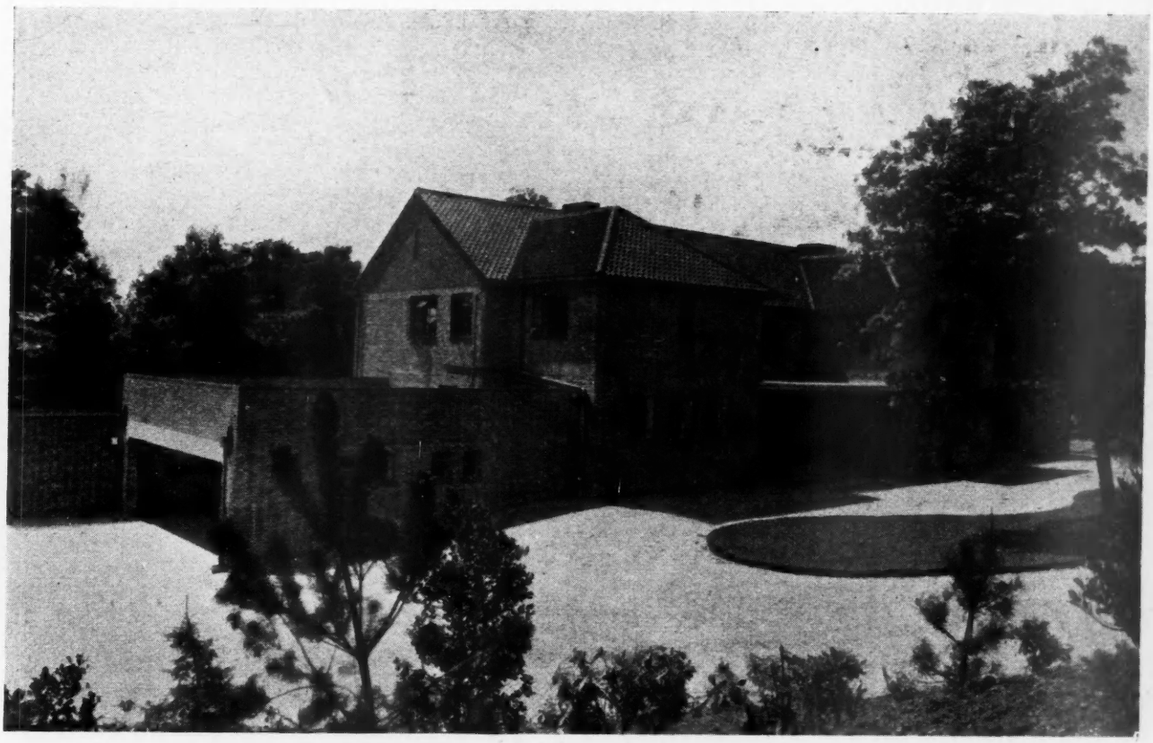
Floors are of fire-resisting construction. Steel casements have been used throughout, those on the S. elevation having oak frames, while those on the N. side have wide flanges and are built directly into the brickwork. A roof pitch of 35 deg. has been used, and the roof is covered with teapot brown glazed pantiles. Hot water and central heating are by means of a "Manda Ray" gravity-fed boiler, which is thermostatically controlled. Central heating is controlled independently of the hot water supply, by means of a motorised valve operated by a thermostat in the hall.

PLAN.—The main reception rooms overlook the garden. The dining-room and drawing-room have Clipsham stone fire surrounds, while the sitting-room has a brick fireplace. There is a garage for five cars with an electrically operated roller shutter which can be controlled from inside or outside the garage or from the hall of the house. The garage may be entered from inside the house through a fireproof door. The quantity surveyors were Messrs. Davis and Belfield.

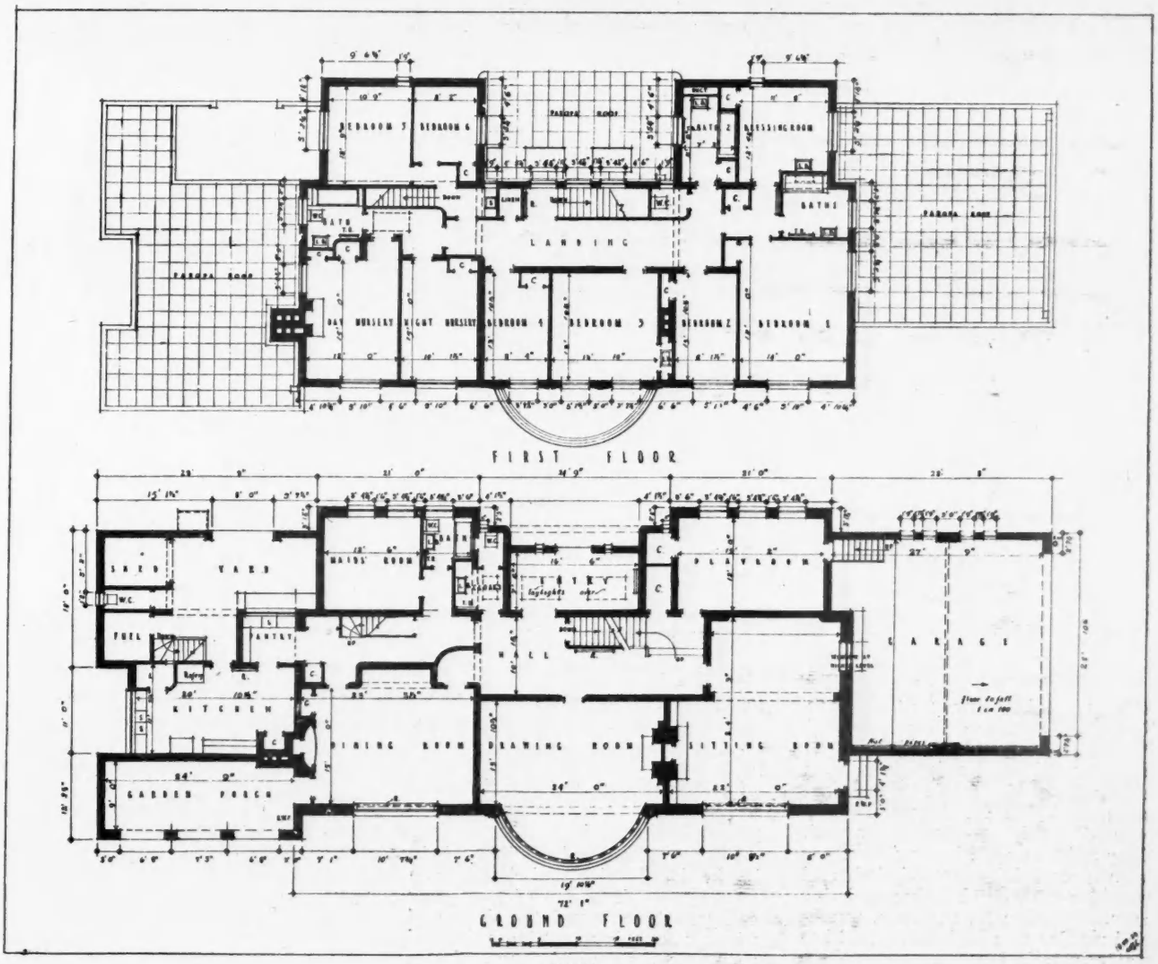
The general contractors were Messrs. A. E. Jones (Woking), Ltd., and sub-contractors were:—

Bricks, St. Albans Brick Co.; tiles, Langley (London), Ltd.; heating and drainage, F. H. Rowlett and Son, Leicester; electrical, The North Metropolitan Electric Supply Co.; windows, Almarco, Ltd., Wellingborough; wood floors, Hollis Bros., Ltd.; composition floors, The British Magnesite Co., Ltd.; wood mosaic floors, Noel Wood-Mosaic Co.; rubber floors, Modern Floorings, Ltd.; cork tile floors, The Cork Insulation Co., Ltd.; plaster, Gypsum Mines, Ltd.; polished Clipsham stone fireplaces and fibrous plaster cornices, The Plasmatic Co.; electric light fittings, Troughton and Young, Ltd.; sanitary fittings, W. N. Froy and Sons, Ltd.; "Manda Ray" boiler, British Heating Industries; control gear, The Rheostatic Co.; kitchen fittings, Peerless Kitchen Cabinets, Ltd.; steel sinks, Benham and Sons, Ltd.; roller shutter, G. Brady and Co.; sewage pump, Blackstone and Co., Ltd.; wrought ironwork and door furniture, Adrian Stokes, Ltd.; flat roof, Frazzi, Ltd.; fireproof floors, The Kleine Co., Ltd.; roof lights, J. and A. King and Co., Ltd.; "Insulcrete" blocks, F. McNeill and Co., Ltd.; flush doors, Venesta, Ltd.; water softeners, Permutit Co., Ltd.; fireproof door, Dreadnought Fireproof Doors (1930), Ltd.; wall tiling, Carter and Co.; and garden work, Henry Burn, Ltd.

MR. H. G. GODDARD, M.A., A.R.I.B.A., ARCHITECT.



THE ENTRANCE FRONT.



PLANS.

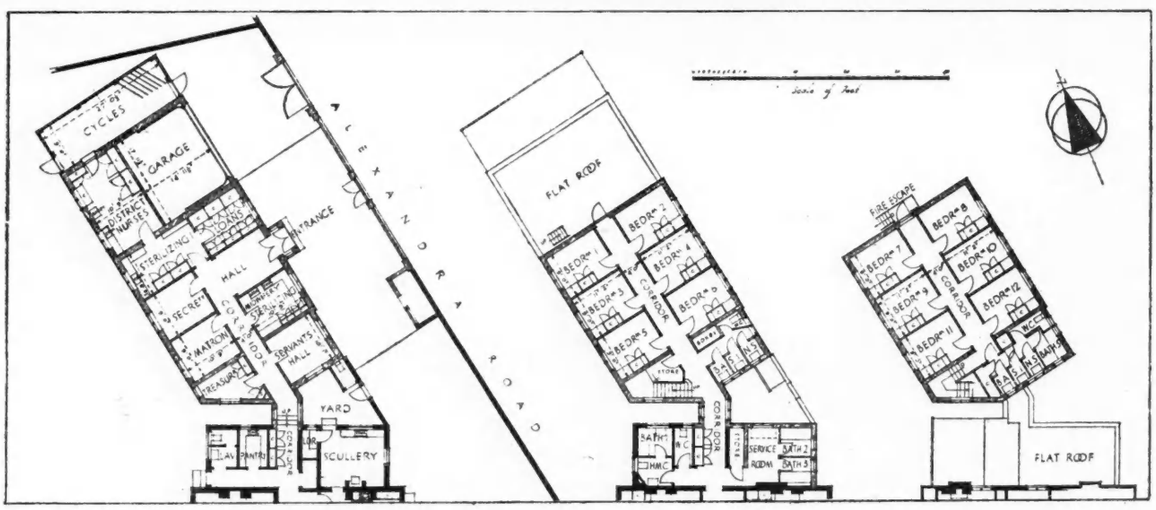
"ARDVRECK": A HOUSE AT PRIORY CLOSE, STANMORE, MIDDLESEX.

MR. H. G. GODDARD, M.A., A.R.I.B.A., ARCHITECT.

ADDITIONS TO QUEEN VICTORIA NURSING INSTITUTE, READING.

MESSRS. CHAS. SMITH AND STON, F. & A.R.I.B.A., ARCHITECTS.

FRONTAGE TO ALEXANDRA ROAD.



PLANS.

THESE new buildings for the Queen Victoria Institute for District Nurses are on the north side of Erleigh-road at its junction with Alexandra-road, in which bedroom accommodation for 19 nurses and four domestic staff is arranged. They adjoin an old house which has been successfully remodelled and provides additional living and day accommodation for matrons, nurses and maids and also heating and hot water installation.

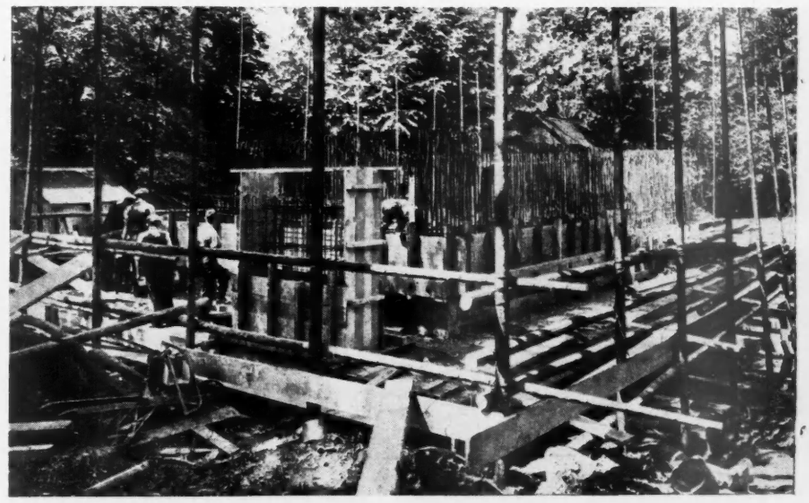
The portion of the new building illustrated, about 41 ft. in length, is three storeys high, and the plan has been so arranged that, if necessary in the future, it could be raised as a 3-storey building for a further length of about 20 ft. The principal entrance to the Institute is in this building, from which access to the various apartments (see plans) is obtained.

CONSTRUCTION.—The building is in brick, faced with red hand-made bricks with dressings of a slightly different tone round the door and window openings. The principal rooms on the ground floor and also lavatories, etc., are laid with marble terrazzo. Walls generally are distempered, but corridors and the district nurse's room are painted.

The general contractors were Messrs. Geo. S. Lewis and Bro., of Reading; and the following firms were employed as sub-contractors : central heating and hot water, H. C. Goodman, Ltd., Reading; electrical work, Baughan and Co., Ltd., Reading; sanitary fittings, Callas, Sons and May, Ltd., Reading; terrazzo floorings, Diespeker and Co., Ltd., N.W.1; composition flooring, Marbolith Flooring Co., Ltd., S.E.11; flush doors, S. Elliott and Sons, Ltd., Caversham; flat roof covering, D. Anderson and Son, Ltd.; rubber covering to staircase, Dunlop Rubber Co., Ltd.; and metal windows, Henry Hope and Sons, Ltd., London.

A PROTECTED MAILING DEPARTMENT FOR AN INSTITUTION

MR. LEONARD ALLEN, F.I.A.A., ARCHITECT. MR. G. R. FALKINER NUTTALL, M.A., A.M.INST.C.E., CONSULTING ENGINEER.



THE BUILDING UNDER CONSTRUCTION.

THE provision of shelter accommodation which can reasonably be declared "bomb-proof" is dependent upon a number of factors—among them sizes and types of bomb and cost—which in most cases rule it out for all but exceptional purposes.

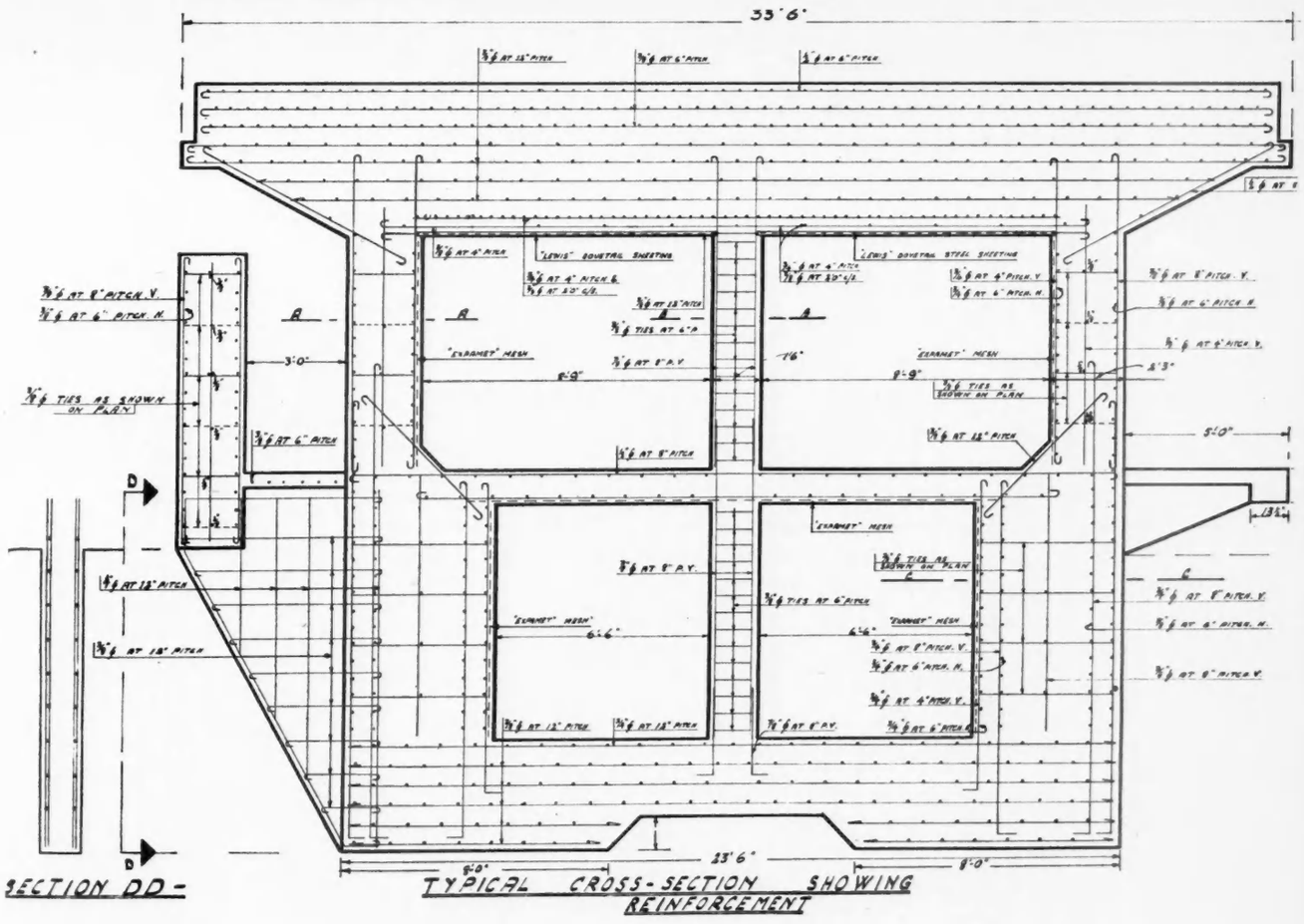
One such case is the structure illustrated on this and the following page, where a bomb-proof building was required by an institution responsible for the safety of records, and having also a large mailing department. In the provision of this building—which was designed by Mr. G. R. Falkiner Nuttall, M.A., A.M.Inst.C.E., Mr. Leonard Allen, F.I.A.A., being the architect—opportunity also was taken to afford shelter accommodation for 120 persons.

DESIGN: Above ground the structure has splinter-proof walls and a flat splinter-proof roof, and it is well lighted by windows placed high up near the roof. At first-floor level there is a reinforced concrete platform 4 ft. 6 in. thick, which forms a bomb-proof slab over and projecting beyond two fully protected storeys. The equipment includes two ventilation and air-filtration plants (one for 100 persons and one for 50 persons), and a generating plant for supplying electricity for this plant, for lighting and for the office machines.

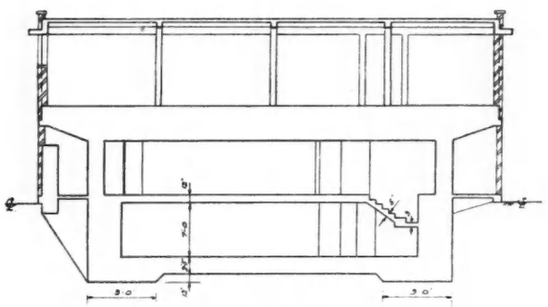
The accommodation is provided on two floors in order to reduce the area of the 4 ft. 6 in. bomb-proof slab, the projection of which beyond the walls justified a reduction in the thickness of the walls. The thicknesses of reinforced concrete are based mainly on French experience in fortification work, and are very similar to the recommendations in the Home Office A.R.P. Handbook No. 5. The underside of the roof slab is lined with Lewis Dovetail Sheeting.

MATERIALS: The concrete was mixed in the proportions of 1 part of Portland cement, 1½ parts of sand, and 3 parts of gravel. The bomb-proof slab was placed in a continuous operation, using "Trillor" high-frequency flexible-drive immersion vibrators until the shear-links were covered. The work was completed just before the declaration of war, and was immediately put into use.

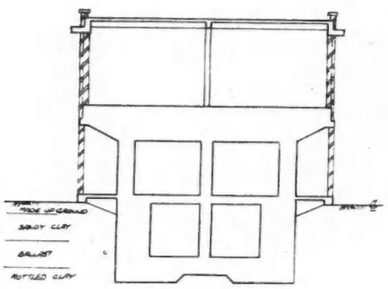
The general contractors were Messrs. Constable, Hart and Co., Ltd. The Rom River Co., Ltd., supplied and fixed the reinforcement. The ventilation and filtration plant was supplied by the Carrier Engineering Co., Ltd., and the steel doors by Ferro-Concrete and Steel Structures, Ltd.



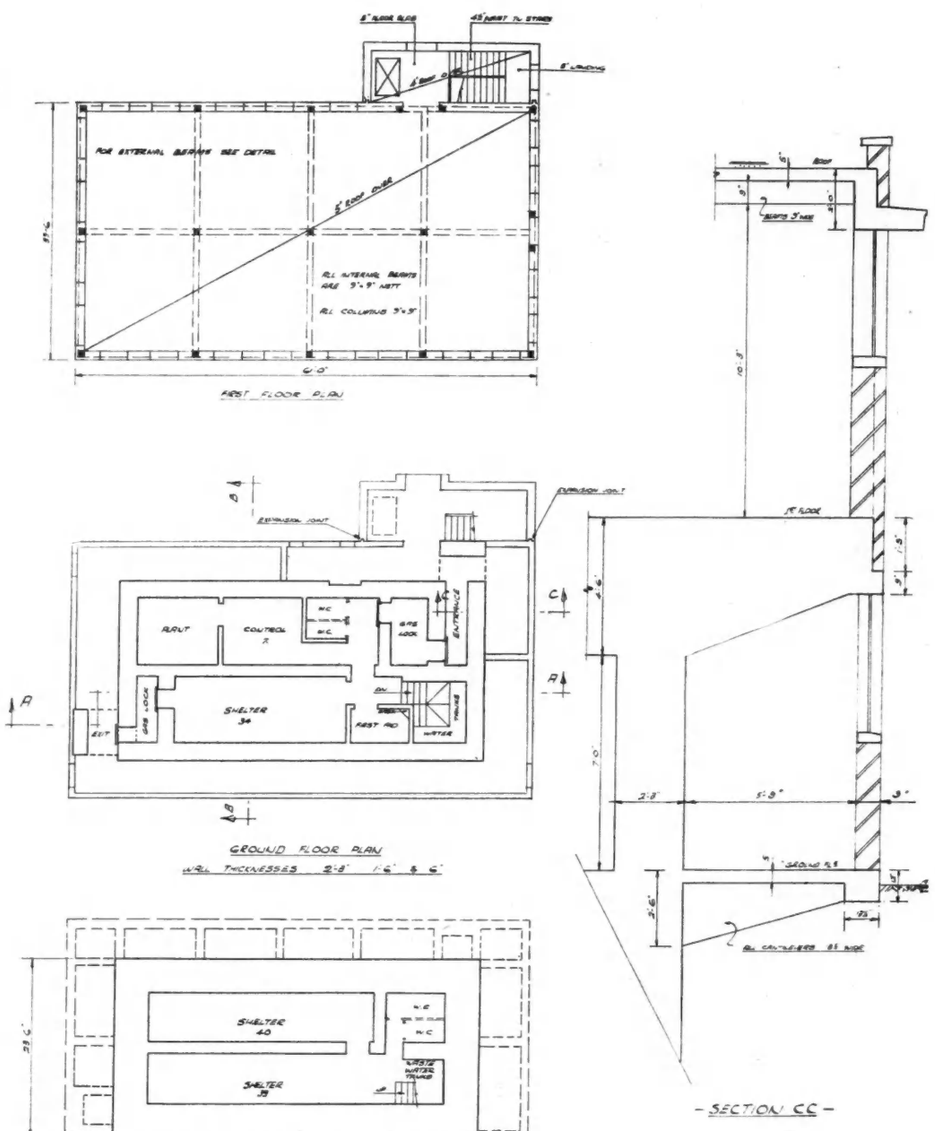
CROSS SECTIONS THROUGH LOWER STOREYS OF STRUCTURE.



LONGITUDINAL SECTION.



CROSS SECTION.



PLANS AND SECTION CC.

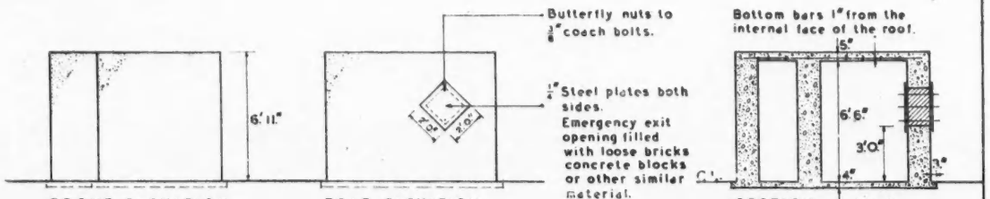
A PROTECTED MAILING DEPARTMENT FOR AN INSTITUTION.

MR. LEONARD ALLEN, ARCHITECT. MR. G. R. FALKINER NUTTALL, A.M.INST.C.E., CONSULTING ENGINEER

CONCRETE DOMESTIC SURFACE SHELTERS

WORKING DRAWINGS FOR SHELTERS TYPES A. & B. DESCRIBED IN HOME OFFICE A.R.P DEPT'S. PAMPHLET "DIRECTIONS FOR THE ERECTION OF DOMESTIC SURFACE SHELTERS"

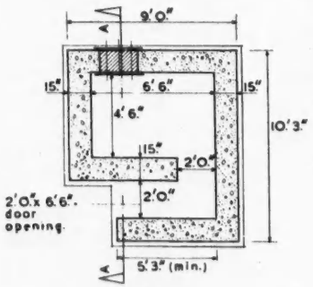
THE STANDARD DESIGN, INTERNAL DIMENSIONS 4'6" WIDE x 6'6" LONG (AS DRAWN), PROVIDES SHELTER FOR 6 PERSONS. FOR 8, 10, OR 12 PERSONS INCREASE LENGTH TO 8'6", 10'6", OR 12'6" RESPECTIVELY.


6'11"
Butterfly nuts to ⅜" coach bolts.
¼" Steel plates both sides.
Emergency exit opening filled with loose bricks concrete blocks or other similar material.
Bottom bars 1" from the internal face of the roof.
5"
6'6"
3'0"
4"

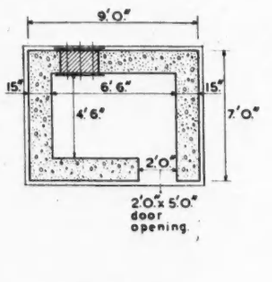
FRONT ELEVATION · Type · A ·

REAR ELEVATION · Types · A & B ·

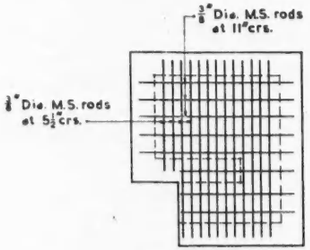
SECTION A · A · Type · A ·



PLAN Type A



PLAN Type B



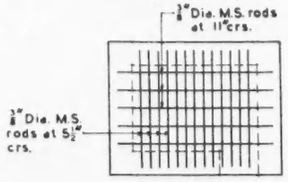
ROOF PLAN · Type · A · Showing Reinforcement.

QUANTITIES. (Approx.)

MATERIALS	TYPE A	TYPE B
Concrete	12·4 cu. yd.	9·3 cu. yd.
Formwork	58 sq. yd.	44 sq. yd.
Reinforcement	65 lb.	46 lb.

BAR DETAILS. All bars straight ⅜" M.S.

SHELTER	LENGTH	NO. OFF.
Type A.	9'5"	11
	8'2"	5
	6'2"	2
	5'8"	3
Type B.	8'2"	5
	6'2"	13



ROOF PLAN · Type · B · Showing Reinforcement.

CONCRETE MIXES. (For full details see Home Office pamphlet.)

Floor. 1 : 2 lb. Portland Cement, 12 cu. ft. Aggregate, including sand.

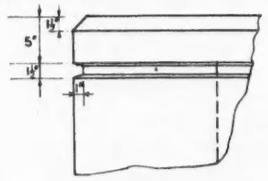
Walls, Roof. 1 : 2 lb. Portland Cement, 2½ to 3½ cu. ft. sand, 5 cu. ft. aggregate, ¾" down. or 1 : 2 lb. Portland Cement, 6 cu. ft. 'All in' ballast.

'Pill box No. 2 mixture' complying with the above aggregates specification may be readily obtained commercially.

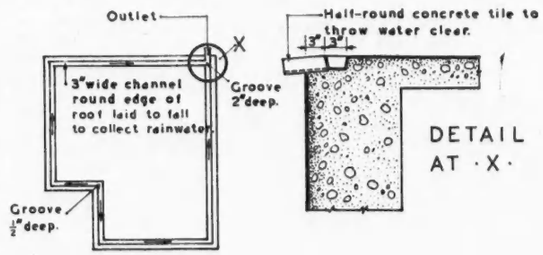
REFINEMENTS SUGGESTED

(1) Chamfer arrises.

(2) Form splay and channel to edge of roof to improve appearance.



(3) Form channel around edge of roof for rainwater, thus:



ROOF PLAN · Type · A · Showing Drainage Channel.

(4) Construct traverses or return walls of precast concrete blocks laid dry, so that if desired the blocks could be removed and stored in peace-time, thus facilitating entry of prams, etc., into the shelter. (Roof details may require modification.)

(5) Fit detachable glazed window frame to emergency exit and store steel plates until threat of war.

(6) Fit timber door to exclude animals, etc.

(7) Surfaces may be finished in various ways, such as:
a) Cement paint or wash in colour to tone with surroundings.
b) Cement render to give any surface texture and shade desired.
c) Sand-blast or bush-hammer, etc., to expose aggregate.

REGISTERED HOUSE BUILDERS

A NEW ASSOCIATION.

SINCE the inaugural meeting of the National Association of Registered House-Builders, held on November 27, when the Council of the new body was elected, the first meeting of the Council has been held (on December 5) in the new council chamber at the Association's headquarters, 82, New Cavendish-street, W.1.

The Council at this meeting discussed business of a preliminary nature, and among other things agreed to the appointment of a director and secretary. Consideration was also given to matters of finance, including the appointment of staff and arrangements for office accommodation.

Other items on the agenda were:—

1. To consider, as a question of general policy, how to maintain liaison and avoid overlapping between the Association and existing organisations. The sense of the meeting was to the effect that the Association should deal only with national issues, and that matters at present under consideration by other bodies and likely to be brought by them to a successful conclusion should be excluded from the active deliberations of the new Association. The main function of the Council is to consider questions that are related to registration of builders, certification of houses and all that is entailed therein. Their deliberations may also embrace questions affecting the interim use of the resources of house-builders in order that during the war period they may be maintained in being and usefully employed in the national interest and in order that preparation may be made for post-war reconstruction.

2. To consider a memorandum in regard to the spreading of Government work over the greatest number of builders. The memorandum in question outlined developments during the past months in regard to the letting of Government contracts and stressed the desirability of these being let in smaller units.

3. To consider a memorandum in regard to the Home Office form of contract for use in connection with A.R.P. work. The latest draft of the new form of contract was made available to members.

4. To consider the appointment of a small committee to act under the present emergency conditions between council meetings. It was agreed that the officers of the Association (President, Vice-Presidents, Hon. Treasurer and Director) should form this committee with power to co-opt additional members from the Council for such purposes and such periods as circumstances might require.

Following are the officers and Council:—

PRESIDENT: Mr. C. D. Calverley, 1, Northampton-street, Leicester.

SENIOR VICE-PRESIDENT: Mr. H. E. Comben, B.Sc., A.M.Inst.C.E., 603, Kenton-road, Kenton.

JUNIOR VICE-PRESIDENT: Ald. H. E. Pitt, J.P., Leopold-street, Millfield, Sunderland.

HON. TREASURER: Mr. Norman E. Wates, Messrs. Wates, Ltd., 1258-1260, London-road, Norbury, S.W.16.

SEVENTEEN MEMBERS OF COUNCIL: Coun. J. F. Bushell, 53, Catherine-street, St. Albans, Herts; Mr. G. T. Crouch, 3-5, Thames-street, Kingston-on-Thames; Coun. A. W. Curton, Golf Course Estate, Edgware, Middlesex; Mr. Arthur F. Davis, 346-350, Kilburn High-road, London, N.W.6; Mr. J. G. Gray, J.P., Combe Abbey, near Coventry; Mr. F. Hocking, 30, Wyke-road, Coventry; Mr. R. W. Jennings, Pennywell-road, Bristol; Mr. John Laing, Messrs. J. Laing and Son, Ltd., Mill Hill, N.W.7; Mr. Frank Lord, J.P., Parkfield, Werneth Hall-road, Oldham, Lancs; Mr. Godfrey Mitchell, Messrs. Geo. Wimpey and Co., 27, The Grove, Hammersmith, W.6 (war address: Tilehurst-lane, Denham, Uxbridge); Mr. F. E. Moss, Branksome Dene, Queen's-road, Cheltenham; Mr. E. O'Sullivan, Orpington Garden Estate, Arterial-road, St. Mary Cray, Orpington; Mr. G. Warren Peachey, Messrs. Richard Costain, Ltd., Costain House, 18, Upper Woburn-place, London, W.C.1; Mr. Harrison Porritt, Ashmead-drive, Ten Ashes, Rednal, Birmingham (war address: "Rosemunde," Bell Heath, Belbroughton, near Stourbridge); Mr. H. Bayliss Silver, F.A.L.P.A., 11, Crescent-parade, Hillingdon, Uxbridge; Mr. Frank Taylor, County Homesteads, Ltd., Adrienne-avenue, Ruislip-road, Southall, Middlesex; Mr. R. Willan, 2, Brooklands-road, Sale, Manchester.

DIRECTOR: Sir Jonah Walker-Smith.

SECRETARY: Mr. Norman H. Walls.

SMALL MANUFACTURERS AND GOVERNMENT CONTRACTS

AN ASSOCIATION FORMED.

SOMEWHERE between a hundred and a hundred and fifty representatives of small manufacturing firms assembled at the Charing Cross Hotel, W.C., on Tuesday afternoon, December 19, with the object of forming an Association to look after their interests in the matter of Government contracts. MR. JOHN A. R. MCDONALD, who had called the meeting, presided over it. It was decided that an Association be formed, and that this should be called the Small Manufacturers' Association. A temporary committee was elected to take the steps necessary for organising the Association, and a resolution was passed expressing the meeting's alarm at the neglect of the small manufacturer by the Ministry of Supply, which neglect, the resolution stated, was contrary to the public interest and hindered the successful prosecution of the war.

The CHAIRMAN, in opening the proceedings, said it was necessary for small manufacturers such as those present, or represented, to have an association, and from that association to elect a strong committee which could handle the association's affairs with the Ministry of Supply and the Board of Trade. As separate units small manufacturers would be unable to get a hearing from the Ministry of Supply, because the Ministry's principle was to give out its requirements in large units. Sub-contractors were not satisfied with the treatment they were receiving; in some cases they did not even receive a profit on the work they were doing. Why should not the Ministry place orders in small units with actual makers? He had addressed letters to the Minister himself and his secretaries, and of these letters the only acknowledgment had been a postcard. After the present meeting he was going to approach fifteen hundred small manufacturers who were getting no war work. If those manufacturers had to close down, that would increase unemployment, and cause not the manufacturers only but the workers also to lose heart and faith in the Government. Many manufacturers could undertake to do work with foreign countries, and we had a unique position now that Germany was out of the market. He proposed that a committee be formed to see Mr. Stanley on the matter, and ask that the Overseas Department act as the agent of the small manufacturer in finding out the materials, prices and conditions as regards payment and terms of payment of German exporters.

SIR CHARLES ALLOM said that having recently approached the wood-working department of the Ministry of Supply, he had been told that the department agreed to the grouping of small firms so as to carry out work. Manufacturers should send in to Mr. McDonald lists of their machinery so that the Government might be informed what an enormous waste of power was taking place. They should also state the number of men and women they were in a position to keep going. He had been told that the Ministry of Supply thought the department must stick to the tender system. This was a ruinous system for manufacturers owing to the fact that people with little experience or lacking in work tendered too low. The Government would have to double and treble Carey-street if it carried on with the tender system. Three great firms in the building trade had thrown up a million pound contract because they were losing money in it. If there were proper surveyors to estimate the work on behalf of the Government it would be quite easy to apportion to any firm employment at a profit which would enable it to get the work done and to keep going.

MR. CECIL GRAYSON proposed that when a permanent committee was formed the country should be split into sections, and there should be a committee for each section responsible to a head or central committee.

MR. ROBERT SANDERS said the present war would be won on the home front, and won by the manufacturers of this country. The Government was relying on a large amount of money to enable it to win the war, and that money was to come from manufacturers and traders. But if things went on as now, manufacturers and traders would have no incomes to pay taxes on.

MR. G. G. BLAKEY said there was a great number of small firms on the East Coast of Yorkshire, but all too small to get the ear of the Ministry even when grouped together in a small way. The question of prices worried them, and unless they got together and moved quickly things would be worse still.

MR. ROBERT DREW complained of the absurdly high character of specifications. With regard to most things in the way of munitions, the best was only good enough; but there were scores of other things for which the best was far too good. In almost every case these unnecessary requirements could be traced back to a draughtsman who knew nothing of production, played for safety, and often put on a limit which was absurdly high.

MAJOR THOMAS said it was very hard for small firms to get any work at all, mainly because of the difficulty of approaching the Ministry of Munitions, and also because nobody understood what the small firms could in fact do. Our manufacturers could adapt their plants to do all sorts of things.

MR. MORGAN said it did not matter what country one took, the backbone of its industry was the small manufacturer. Over 90 per cent. of the firms in this country employing men employed less than one thousand each.

CAPTAIN MOORE said that manufacturers who inquired of people actually working in various sections of civil defence would find a tremendous amount of work waiting of which the Ministry was ignorant.

Other speakers followed.

The temporary committee already mentioned as being elected consisted of: Mr. John A. R. McDonald (Chairman), Sir Charles Allom (Vice-President, Incorporated Association of Architects and Surveyors), Mr. Robert Sanders (Chairman, Buckland Silicate Company), Mr. G. G. Blakey (Trinity Works, Scarborough), Mr. Cecil Grayson, and Major Thomas.

Mr. J. A. R. McDonald writes to inform us that it is proposed to hold a meeting of the Association on January 4. He states that he has the addresses of over 2,000 small manufacturers whom he is approaching with a view to their becoming members. Those who wish to attend the meeting are requested to write without delay, and, if they have not already done so, to send 5s. subscription towards the preliminary expenses in connection with the meeting and Association, to the treasurer, Mr. T. G. Weavers, 5, Budge-row, E.C.

THE BIRTH OF A FACTORY

SOME BASIC FEATURES.

"THE basic feature of a factory is the execution of a certain process wherein by the use of labour, power, heat and chemical, materials are combined or change into a more valuable form." Thus, MR. HAL GUTTERIDGE, A.M.I.Mech.E., M.I.E.I., and DR. HERBERT CHATLEY, B.Sc.(Eng)., M.Inst.C.E., in the course of a lecture given before the London Branch of the Works Management Association some time ago at Caxton Hall, Caxton-street, S.W.1.

The lecturers continued : The process therefore determines the whole operation of the factory, and it may be stated as a truism that the ideal factory is one which is exactly adapted to the process carried out. This adaptation must be both qualitative and quantitative. The qualitative adaptation may be indicated by the relation of the lay-out to a flow diagram, while the quantitative relation is expressed in the dimensions and capacity of the plant.

A flow diagram consists of a continuous line connecting points, each of which represents a definite stage in a process. Wherever items are brought in or removed, branch lines enter or leave. The beginning of this line is with the entry of the principal raw materials and the end of the line is at the dispatch point of the completed product.

The first principle to be observed in the lay-out of factory buildings is that the buildings must be made to fit the equipment and not the equipment to fit the buildings. The purpose of a factory building is to support various parts of the plant in definite relative positions, to protect the equipment from the weather and frequently to assist in maintaining certain air conditions.

The type of any particular building depends on a number of factors but primarily on the kind of manufacture. If, as an example, during the course of manufacture the product is in liquid form, such as in the production of sugar, beer, milk, and so on, a multi-storey structure assists the problems encountered, for in such a building good and efficient use can be made of the force of gravity. In materials which flow easily, such as in the grading, mixing and storing of wheat or other cereals, a multi-storey building is also more suitable than a single-storey structure.

Single-storey Buildings.

A single-storey building is indicated where heavy loadings are required such as in foundries, heavy engineering works, also in the manufacture of cement, bricks, and so on. If the cost of the ground area is comparatively low, it permits ready expansion in any direction. A single-storey building provides better general natural lighting, and is easier to ventilate. Better supervision is possible as all the equipment is on one floor and fire and explosion hazards are less. A secondary consideration is that the building is more adaptable for use by manufacturers of other commodities and therefore of better sale value. On the other hand, where the cost of the land is high or the area is limited, the multi-storey building frequently is a more economical proposition. Where light-weight machinery is employed or where the manufacture is highly departmentalised, the multi-storey structure may be more suitable. It is also cheaper to heat.

In many cases, a number of buildings are required where the product from one building is the raw material of another. The consideration then arises as to the relative position of the buildings to each other and to points of reception and despatch. Further, if a number of differing products are manufactured, there is a series of inter-relationships which affect the layout.

Structure.

The type of structure for a factory from an economical point of view is determined as far as materials are concerned by the following considerations :—

(1) Strength, to carry the loads of the building itself, the machinery, materials in process, stores, and the operatives.

(2) Rigidity, to maintain alignments, and damp vibrations.

(3) Durability.

(4) Opacity to heat and sound.

(5) Ease of handling to facilitate rapid assembly and alteration.

(6) Standardisation, to secure the economic benefits of mass-produced articles.

Items (1) and (2) do not march together, so that, while buildings for ordinary non-industrial purposes are usually designed from the strength aspect (*i.e.*, limiting stresses), machines, and to some extent factories, need to be designed for rigidity (*i.e.*, limiting strains). The same material differently disposed will give different strengths to resist bending and for equal strengths there are various arrangements which will give different rigidities. In general more material is required to give stiffness than simply to obtain the necessary strength. For pure bending the modulus of the section (*i.e.*, the moment of inertia divided by the distance from the neutral axis) is the criterion, whereas for stiffness the moment of inertia is the governing factor.

Thus for simple rectangular sections, the strength varies as the cube of the depth, or, to put it another way, the same strain at a greater distance from the neutral axis of the beam produces a smaller distortion of the whole beam. By the use of open-lattice frame, much greater stiffness can be obtained than with compact forms, but this is at the expense of cost of construction and less durability.

As to materials, the frame construction has fully established itself as the most economical, but it is still a question as to the relative merits of reinforced concrete and steel, which is largely a question of the costs of the two materials. If reinforced concrete costs, say, as high as 5s. per cu. ft. including steel and form work, and constructional steel, say, as low as £9 per ton = £2 per cu. ft. and the safe stress in the reinforced concrete is one-eighth that in the steel, the two are equal economically. Steelwork is much quicker to erect than reinforced concrete and this may be an economy. It is an essential feature of reinforced concrete design that the strain, not the stress, in the concrete shall be the same as that in the embedded metal, so that the strains in the reinforced concrete tend to be of the same order as those in steelwork, the relative weakness of the concrete being compensated by greater area. Since equal strains at equal distances from the neutral axis give equal deflections, it may be said roughly that reinforced concrete members have the same stiffness as steel members of the same overall dimensions. The weights also do not differ greatly, the concrete being usually solid and the steelwork about 25 per cent. solid; thus if the mean density of the reinforced concrete is 2.5 and that of steel 7.5, a solid reinforced member will weigh 2.5 (7.5 × 0.25) = 1.33 times as much as steel member of the same overall dimensions.

Steel Frame Construction.

Greater ease of handling and standardisation are points in favour of steel frame construction. The facility with which machinery can be attached to steelwork or minor alterations can be made is also in its favour. Standardisation presents great opportunities of economy. The facility for design, the interchangeability of the units, the reduced cost of production by mass methods, and speed of delivery due to ample stocks, all favour the adoption of standard steel members, window frames, doors, light fittings, and so on. The future should see great advances in this respect.

Flooring and stairs are important items, the surfaces having to be considered from the point of view of wear, cleanliness, resistance to fire, and accident. Opacity to heat is a distinct economy and is almost always a question of air spaces in the walling material. Porous brick, hollow tiles, or breeze blocks, are thus preferable to dense concrete, and will often pay for their extra cost in fuel saved. Opacity to sound goes to a great extent with opacity to heat.

Natural lighting is interrelated to room heights, window areas, roofing, walling, and wall colours and finishes. Economies in operation can be gained by careful attention to proper light intensity and the absence of glare. Light coloured wall finishes reflect about 75 per cent. of the incident light; dark ones about 10 per cent., so that if we assume that at any point half the light is direct and half indirect, the lighting ratio is over 1½ times as great for the light coloured walls, requiring only two-thirds the candle-power to get the same illumination with dark walls.

In order to keep the air of a factory pure, it must be changed at a rate which renews the whole volume in an hour or less. One and a half changes per hour is considered good practice. This change can often be effected by convection through fixed ventilators, but assistance with extractor fans is frequently necessary. Under the Factories Act all injurious and offensive fumes and dust must be removed, and this will necessitate the design of appropriate intakes, ducts and fans at all units producing such fumes or dust. If the process involves special temperature, humidity or dust-free conditions, doors must be double, windows fixed, there must be no ventilators and all air admission and exhaust must be through control openings.

The intensity of lighting required for optimum operation varies from 5 to 50 candle-feet at the working point, according to the delicacy of the work. How far this light needs to be uniform depends on the distribution of the working points but generally a uniform system of lighting is the most convenient, and it is a matter of choosing points and c.p. of lamps so that the most economical distribution of light is chosen.

WELSH SCHOOL OF ARCHITECTURE

The annual exhibition of the Welsh School of Architecture was held at Cardiff on December 8. A well-attended gathering was presided over by Mr. C. F. Bates, F.R.I.B.A., President of the South Wales Institute of Architects, and the Deputy Lord Mayor of Cardiff (Councillor George Wilham, C.B.E.) declared the exhibition open. An address was given on the work of the Welsh School of Architecture by Mr. W. S. Purchon, M.A., F.R.I.B.A., Head of the Welsh School of Architecture in the Technical College, who said that the School opened in one room with eight students and with himself as the only member of the staff on March 20, 1920, rather more than 19 years ago. At the end of last session, as a result of slow, steady growth, they had 61 full-time students in five studios, and there were six members of the staff. During those 19 years they were first granted the "Intermediate" recognition of the R.I.B.A., and at a later date the full recognition of that body, which meant that their examinations were recognised as exempting their successful students from the whole of the examinations leading to the Associateship of the R.I.B.A. About six years ago they were one of the first schools to have their examinations accepted as providing a full qualification for admission to the Register which had been established in connection with the Architects' Registration Act. Their degree scheme had been recognised by both the R.I.B.A. and the Registration Council, and they now had a very complete set of recognitions. Although their numbers had always been modest, their students had acquitted themselves well in the leading national competitions. It was important, however, not only that some of their students reached a particularly high standard, but also that the general level of attainment was reasonably high.

A vote of thanks to the Deputy Lord Mayor and Mr. C. F. Bates was proposed by Principal J. F. Rees, M.A., seconded by Mr. Percy Thomas, LL.D., P-P.R.I.B.A., and supported by Mr. T. Alwyn Lloyd, F.R.I.B.A., P-P.T.P.I.

BITUMINOUS PAINT AND BITUMINOUS COMPOUND FOR THE PROTECTION OF STEELWORK

BRITISH STANDARD SPECIFICATIONS.

THE following specifications (BS/ARP 2, August, 1939) are part of a series of specifications prepared by the British Standards Institution at the request of the Air Raid Precautions Department of the Home Office.

FOREWORD.

The purpose of the two specifications herewith is to provide reasonable definitions of the general composition and properties of bituminous paint and bituminous compound for the protection of steelwork under the A.R.P. schemes. The surface treatments described are not intended to replace the other forms of surface protection at present used in general building and engineering work, but may be supplementary thereto, *e.g.*, bitumen paint or compound may be applied to steelwork already galvanised.

It must be recognised that in order that the best possible results may be obtained from any surface coating on steel it is necessary that the surface of the metal shall be suitably prepared to receive it; all known forms of protection fail if the surface to be protected is not in a suitable condition, and the application of protective media in such circumstances is not only valueless but also liable to involve the serious danger of a "false sense of security."

The bituminous preparations covered by the present specifications are intended for application to steel not previously painted. All rust, dirt and grease must be removed and in addition any mill scale which is removable by chipping, hammering and wire brushing.

Two types of bituminous preparations are dealt with in the following specifications:—

TYPE A.—A non-aqueous bituminous paint for cold application. This paint is intended to be applied to steel structures which are not buried in soil or exposed to the weather. Two coats of the paint should be applied, and the first should preferably be applied to the unpainted steelwork, previously cleaned as outlined above, before the steelwork is dispatched for erection. The thickness of each coating should be not less than 0.0015 in. thick.

TYPE B.—A non-aqueous bituminous composition intended for hot application, either by dipping or brushing. This composition is intended for application to steel structures which are to be buried in soil. The composition should be applied to the steelwork at the place of fabrication, or at the site where it is to be erected. The thickness of one coat should be not less than 1/20 in. It is preferable that before the application of composition Type B the steelwork, previously cleaned as outlined above, should be primed, either with bituminous paint (Type A) or with the bituminous compound Type B, both being reduced to a suitable consistency with volatile thinner or solvent; in neither case shall the volatile matter present exceed 80 per cent. by weight of the paint ready for application.

TYPE A. BITUMINOUS PAINT FOR THE PROTECTION OF STEELWORK NOT EXPOSED TO THE WEATHER.

Note.—In order to obtain the best results in the use of this paint the procedure laid down in the foreword in regard to the cleaning of the surface before application of the paint must be rigidly observed, and the specification must be read in conjunction with the foreword.

1.—DESCRIPTION.—The material shall be a non-aqueous bituminous paint consisting of a suitably prepared bituminous base with or without suitably prepared drying oils, mineral fillers and/or pigments together with necessary volatile diluent or solvent to give proper painting consistency.

2. VOLATILE MATTER—The loss on heating the material in the manner described below shall not exceed 50 per cent.

From 1.0 to 2.0 grams of the material shall be weighed into a flat-bottomed, circular, metal dish about 3 in. in diameter. The dish and contents shall then be heated in a suitable oven at 145 deg. C. to 150 deg. C. (293 deg. F. to 302 deg. F.) for three hours, allowed to cool to air temperature and reweighed.

3. FLASH POINT.—The material shall not flash (Abel Closed Test) at a temperature below 80 deg. F.

4. APPLICATION.—The material shall be in such condition that when stirred it produces a smooth uniform mixture of consistency such that when applied by the brush in a normal way at ordinary temperatures 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) to a polished steel surface it yields a film approximately 0.0015 in. thick. The dry film shall be level and smooth.

5. DRYING PROPERTIES.—The material shall, when applied as described in Clause 4, give a film which is surface dry* in not more than six hours and hard dry* in not more than 24 hours.

6. RESISTANCE TO WATER.—One coat of the material shall be applied to a previously cleaned and polished panel of steel or other non-absorbent material, and shall be allowed to dry at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 24 hours. The panel shall then be partly immersed in distilled water at a temperature of 25 deg. C. (77 deg. F.) for 24 hours, after which the film of the material shall show no visible discoloration or softening. Softening shall be determined by lightly rubbing a piece of white cloth over the surface, when absence of discoloration of the cloth shall be taken as indicating absence of softening. Tests should be made in triplicate.

7. RESISTANCE TO CORROSION.—Two coats of the material shall be applied by brush to a previously cleaned and polished steel panel, each coat being allowed to dry at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 24 hours. The panel shall then be partly immersed in a solution of sodium chloride (3 g. sodium chloride to 100 ml. water) at 25 deg. C. (77 deg. F.) for 96 hours, after which there shall be no visible disturbance of the film, and after removal of the film by solvents, avoiding rubbing, there shall be no visible rusting of the steel. Tests should be made in triplicate.

8. FLEXIBILITY.—One coat of the material shall be applied by brush to a previously cleaned tinplate strip, 30 S.W.G. about 6 in. by 2 in. After being kept at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 96 hours, the strip shall be bent double, 3 in. from the upper edge over a 0.125 in. diameter rod without showing signs of cracking of the paint film. Care shall be taken that the temperature of the specimen and rod during this operation shall be between 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.), and the time occupied for the actual bending shall not exceed one second.

9. RESISTANCE TO ABBRASION.—One coat of the material shall be applied by brush to a previously cleaned and polished steel panel which shall then be kept at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 96 hours. The panel shall then be held rigidly at an angle of 45 deg. to the horizontal, and an iron pipe (1 in. internal diameter and 3 ft. long) shall be placed vertically in a position such that its lower end is 2 in. above the centre of the panel.

Dry sand (Leighton Buzzard, white variety graded† to 18 to 25 B.S. mesh sieve) shall be poured through a funnel (one with an internal stem diameter of ¼ in. is suitable) placed at the top of the pipe at the rate of 2 lb. per minute so as to fall on the inclined panel. The film shall not be sufficiently abraded to expose the underlying metal after 2 lb. of sand have been poured through the funnel in this manner Tests should be made in triplicate.

TYPE B. BITUMINOUS COMPOUND (HOT APPLICATION) FOR THE PROTECTION OF STEELWORK TO BE BURIED IN THE GROUND.

Note.—In order to obtain the best results in the use of this compound the procedure laid down in the foreword in regard to the cleaning of the surface before appplication of the paint must be rigidly observed, and the specification must be read in conjunction with the foreword.

1. DESCRIPTION.—The material shall consist of a suitably prepared bituminous base, with or without the addition of suitably prepared drying oils, mineral fillers and/or pigments.

2. PIGMENT AND FILLER CONTENT.—The material shall not contain more than 35 per cent. by weight of pigments and/or fillers, which shall be of such degree of fineness that 100 per cent. shall pass a 52-mesh B.S. sieve and not more than 5 per cent. shall be retained on a 200-mesh B.S. sieve.

3. APPLICATION.—The material when heated to a temperature of not less than 170 deg. C. (338 deg. F.) shall be suitable for hot application by brush or dipping, and when so applied shall set hard on

* For the purpose of this test the term "surface dry" shall mean that condition of the coating at which clean dry silver sand (graded to pass a 52-mesh B.S. sieve and be retained on a 100-mesh B.S. sieve) sprinkled on its surface and allowed to remain for one minute, can be removed by lightly brushing with a camel-hair brush without injury to the coating. The term "hard-dry" shall mean that condition of the coating at which rapid pressure between the finger and thumb does not move it or make any impression that cannot be removed on lightly polishing.

† As used in tests on Portland cement (B.S. 12).

cooling to give a smooth uniform coating not less than 1/20 in. in thickness.

4. Softening Point.—The softening point of the material when tested by the Ring and Ball method (I.P.T. Method A.20) shall be not less than 71 deg. C. (160 deg. F.).

5. Adhesion.—One coat of the material not less than 1/20 in. thick shall be applied to a previously cleaned and polished steel panel about 6 in. by 6 in., 10 S.W.G., suitably primed.‡ After being kept at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 24 hours, the film shall withstand the following impact test without cracking or flaking from the steel or from the priming coat.

The coated panel shall be rigidly supported on a solid block in a horizontal position with the coated side uppermost. A steel tube of approximately 1 in. internal diameter and 3 ft. long shall be supported vertically with the lower end approximately 1 in. from and directly over the panel. A steel cylinder ½ in. in diameter and 4 in. long, with flat-bottom face, having the sharp edge of the face removed and weighing 100 grams, shall be held with its lower end at the same level as the mouth of the tube and released to fall freely through the tube to strike the panel. The film shall be subjected to four such blows, each made on a different area of the panel and at not less than 1 in. from the edge.

6. Resistance to Water.—One coat of the material shall be applied to a previously cleaned and polished panel of steel or other non-absorbent material and shall be allowed to dry at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 24 hours. The panel shall then be partly immersed in distilled water at a temperature of 25 deg. C. (77 deg. F.) for 24 hours, after which the film of the material shall show no visible discoloration or softening. Softening shall be determined by lightly rubbing a piece of white cloth over the surface, when absence of discoloration of the cloth shall be taken as indicating absence of softening. Tests should be made in triplicate.

7. Resistance to Corrosion.—One coat of the material shall be applied to a previously cleaned and polished steel panel which has been suitably primed* and kept at a temperature of 15 deg. C. to 20 deg. C. (59 deg. F. to 68 deg. F.) for 24 hours. The panel shall then be partly immersed in a solution of sodium chloride (3 g. sodium chloride to 100 ml. water) at a temperature of 25 deg. C. (77 deg. F.) for 96 hours, after which there shall be no visible disturbance of the film, and after removal of the film by solvents, avoiding rubbing, there shall be no rusting of the steel. Tests should be made in triplicate.

* * *

The Institution desires to call attention to the fact that this specification is intended to include the technical provisions necessary for the supply of the material herein referred to, but does not purport to comprise all the necessary provisions of a contract. It will be reviewed at any early date, and any comments or suggestions for amendment should be addressed to the Director, British Standards Institution, 28, Victoria-street, London, S.W.1.

‡ The steel panel shall be primed in the manner described in the Foreword.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped and addressed envelope.

Compensation Under Civil Defence Act.

Sir,—*What provisions are made as to compensation by a local authority in respect to buildings, etc., under the Civil Defence Act, 1939?* X.

The Act provides for compensation for damage to proprietary interests as follows:—

Damage by interference with, or with the usefulness of, any "designated premises," buildings or land (S. 6 (1), (2), (3)).

Damage by interference with user during works of restoration after designation has ceased (S. 6 (4)).

Damage caused by construction of works, etc., or their maintenance, in regard to underground shelters, etc. (S. 7 (5)).

For depreciation of property adjoining the highway caused by construction of any shelter by a local authority in streets (S. 9 (5)).

Damage for interference with user during execution of work by owner in commercial building in part not occupied by him (S. 19 (1)).

Damage for impairment of use of such part of a commercial building by reason of the execution of the works (S. 19 (2)).

Damage for interference with the use of any part of factory premises or for impairment of value (S. 20 (4)).

Damage to public utility undertaking or hydraulic power undertaking or damage to mains, pipes, apparatus or works (S. 27 (1)).

Damage, etc., as respects air-raid shelters in residential blocks of flats, etc. (S. 30 (3)).

Ditto as respects land compulsorily acquired (S. 63).

Ditto as respects compulsorily hiring of land (S. 64).

Note.—A building or part of a building where a notice has been posted and has not been withdrawn is "designated premises."

Contracts, Prices and Wages.

Sir,—*I should be glad of information on the following points:*

(1) *Have any steps been taken by the building trade generally to insert a war-risk clause in current contracts? If so, has a standard form of clause been drawn up to cover this, and could you tell me where to obtain a copy of it?*

(2) *What has been the approximate percentage increase in the price of building materials since the war broke out?*

(3) *What is likely to happen with regard to wages as the war goes on?* C. B. A.

(1) A revision of the 1939 Form of Contract to make it applicable to war time has been approved and will be issued shortly. Querist should write to the Secretary of the R.I.B.A., 66, Portland-place, London, W.1, for a copy of this.

(2) The approximate percentage increase in cost of building materials in general since the outbreak of war is 5 per cent. compared with August, but this percentage would vary very much according to different materials.

(3) The National Joint Agreement provides for a review every four months instead of annually, the first review being in January next. An article giving full particulars of this arrangement was published on page 770 of our issue for December 1.

OBITUARY

Percival Blow, A.R.I.B.A.

We regret to record the death on December 21 of Mr. Percival Cherry Blow, A.R.I.B.A. He was 67. A memoir will appear in our next issue.

Sydney Dawe, F.R.I.B.A.

The death is announced of Mr. Sydney Dawe, F.R.I.B.A., aged 71. Mr. Dawe, who was in partnership with Mr. Peter Carter, A.R.I.B.A., at Watford, designed much domestic work in Hertfordshire, and carried out housing schemes for the Rickmansworth Council. He also designed Rickmansworth post office, and in the last few years, with his partner, had carried out a number of schools for the Herts C.C.

F. B. Parsons, F.R.I.B.A.

The death is recorded of Mr. Frank Bernard Parsons, F.R.I.B.A., at the age of 79. For over forty years he had been in practice in Birmingham with Mr. A. Gateley, and was one of the oldest members of the Birmingham and Five Counties' Architectural Association. The firm had a large industrial practice, which is being carried on by Mr. Harold R. Parsons, L.R.I.B.A.

J. F. Parker, J.P., L.R.I.B.A.

The death is announced of Mr. John Falkingbridge Parker, J.P., L.R.I.B.A., of Sidcup, Kent. Born in 1871, he served articles with a prominent City architect, setting up on his own, at the age of 25, in Coleman-street, E.C. His work included the designing of country houses in Surrey and Yorkshire, factories in London, and the restoration of Tudor buildings in Sussex, and he acted as surveyor for some extensive London estates. He joined the Architectural Association in 1887, and was elected to the Society of Architects in 1900, and to the Royal Institute of British Architects in 1925. He was Chairman of the Foots Cray U.D.C. during 1920 and 1921, in which period the authority was changed to Sidcup.

Alderman James Walkden, J.P.

Founder and head of the Wigan building firm of James Walkden and Sons, Ltd., Alderman James Walkden, J.P., has died at the age of 67. He had been a member of Wigan Town Council since 1908, and was Mayor of the borough in 1919. He was a past-president of the Wigan Master Builders' Association.

Air Raid Shelters, Birmingham.

Birmingham Education Committee reports that, with very few exceptions, air raid shelters which remain to be provided will be built above the ground. In order to reduce the time taken to prepare drawings and specifications and obtain competitive tenders a schedule of quantities is being prepared in respect of two types of surface shelters. It is proposed to invite selected contractors to price-in the standard schedules and, if these prices are satisfactory, the contractors concerned will be instructed by the chairman to proceed with the erection of the shelters as soon as the plans have received the approval of H.M. Inspector.

OFFICIAL NOTIFICATION

WOOD AND TIMBER IMPORT LICENSING.

At the request of the Ministry of Supply the Board of Trade have issued an Order (the Import of Goods (Prohibition) (No. 12) Order, 1939), under which the goods set out in the schedule attached to this notice will be prohibited to be imported except under licence issued by the Import Licensing Department of the Board of Trade. The Order comes into effect on January 1, 1940.

It is pointed out that certain of the categories of goods in the schedule were prohibited from importation except under licence by the Import Prohibition (No. 1) Order of September 3, 1939.

For licensing purposes the goods in the schedule fall into two groups, viz., I to VII inclusive, and the remainder VIII to XII. The procedure to be followed by importers will, therefore, vary according to the group in which they are interested. The following directions should be carefully studied by importers :—

GROUP I TO VII.

(i) Licences will be issued by the Import Licensing Department of the Board of Trade on the recommendation of the Timber Control, Ministry of Supply;

(ii) *Applications for import licences must be submitted in duplicate to the Timber Control Department (Branch 8), Ministry of Supply, Elmdale-road, Bristol, 8.* Application forms may be obtained from the Import Licensing Department, Board of Trade, 25, Southampton Buildings, Chancery-lane, London, W.C.2, the Timber Controller, and the offices of H.M. Collectors of Customs and Excise.

(iii) After examination of these applications the Timber Controller will pass them to the *Import Licensing Department (Section 9)* which, in approved cases, will issue and send the licence direct to the applicant;

(iv) *Importers should submit their applications to the Timber Controller before arranging shipment.* They are further advised that, in order to expedite the issue of licences, *a separate application should be made not only for each class of goods, but in respect of each proposed purchase or transaction;*

(v) It should be noted that except in the case of contracts placed before September 16, 1939, *the issue of licences in respect of boxboards (whether wired or not), other than plywood boxboards, will not, until further notice, be entertained.* Importations are being conducted centrally by arrangement with the Timber Control. The existing Open General Licence for boxboards will be withdrawn on January 1, 1940.

GROUP VIII TO XII.

(i) Until further notice licences will be issued only for Item X of this group.

(ii) Applications must be submitted (only one copy required), not to the Timber Controller, but to the *Import Licensing Department (Section 4), Board of Trade, 25, Southampton Buildings, Chancery-lane, London, W.C.2.* Application forms may be obtained from the sources indicated in paragraph (ii) of this notice.

SCHEDULE.

WOOD AND TIMBER AND ARTICLES MANUFACTURED WHOLLY OR PARTLY OF WOOD AND TIMBER, THE FOLLOWING :—

I.—Wood and timber hewn, sawn, planed, dressed, tongued, grooved, beaded, v-jointed, rebated, chamfered, centre beaded, centre v-jointed, round edged, or similarly prepared (other than roundwood logs of pine, spruce and aspen in the natural state or free from bark or bast, not hewn or sawn except cross-cut at the ends, in lengths not exceeding 50 in., the top diameter not being more than 12 in.).

II.—Pitwood, pitprops and mining timber of all descriptions.

III.—Builders' woodwork.

IV.—Boxboards, whether in sets or not, and staves.

V.—Boxes, barrels, casks and packing cases, and parts thereof, other than such articles in use at the time of importation as carriers of goods.

VI.—Plywood, laminboard, blockboard and batten board.

VII.—Veneers.

VIII.—*Furniture and parts thereof.

IX.—*Beadings and mouldings.

X.—Trunk and suitcase hoops, being battens of wood, bent to shape, whether rounded or otherwise shaped at the ends or not.

XI.—*Articles of a kind used for domestic purposes.

XII.—*Wooden heels.

NOTE.—*Until further notice no licences will be issued for categories of goods against which there is an asterisk.

A.R.P. SCHEMES

ANGUS.—County E.C. approved shelters at schools throughout the county at £5,805. Architect, J. McGregor, A.R.I.B.A., County-bldgs., Forfar.

ATHERTON. — 21 public shelters for U.D.C. F. L. Boydell, S. Contractors, G. and J. Seddon, Ltd., 5, Manchester-road West, Little Hulton, near Bolton. Cost, £2,650.

BACUP.—T.C. proposes 14 air raid shelters on various sites, at £1,820, and construction of basement shelters for 1,227 persons. Plans by H. Guffogg, B.S.

BATLEY.—T.C. proposes 400 to 500 pill-box shelters.

BILLINGHAM-ON-TEES.—U.D.C. to ask Durham C.C. to build air raid shelter at Billingham and Haverton Hill Maternity and Child Welfare Centre.

BLACKBURN.—T.C. to erect 5 brick and concrete communal shelters, each to contain 50 persons, in Burnley-road district, and 5 shelters in Mill Hill district. Plans by W. Pickstone, B.E.

BROMSGROVE.—For (a) erection of two trenches for 100 persons at the "Forest Hotel," one "Plough Hotel," Rubery, and one Richmond-rd., Rubery; and (b) air-raid shelter to accommodate 100 persons at Rose Hill, for U.D.C. Contracts placed with: (a) H. L. Wilton, 46, Worcester-st., Bromsgrove, £580, and (b) Wm. Weaver, Ltd., The Strand, Bromsgrove, £232 15s. 2d.

BROMSGROVE.—U.D.C. approved plans for underground shelters, junction of Stourbridge-rd. and Birmingham-rd. for Worcestershire Waterworks Committee.

CHESTERFIELD.—T.C. approved a shop, air raid precautions shelter and office extension, junction of Gluman-gate and Saltergate, for Independent Order of Rechabites (Chesterfield branch). W. A. Derbyshire, architect, Gluman-gate, and contractors are Chas. Gaunt and Son, Ltd., Chatsworth-road, Chesterfield.

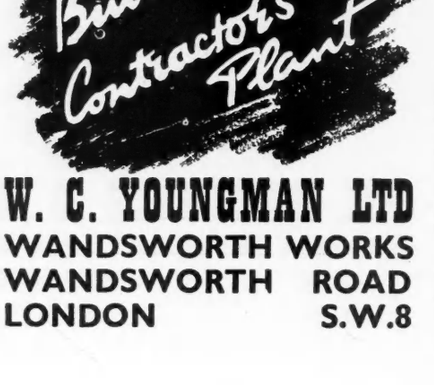
CLAY CROSS.—H. Taylor, civil engineer, Regal-chambers, Chesterfield, prepared plans for shelter for U.D.C. for 700 persons.

COALVILLE.—U.D.C. proposes 36 public shelters, at £7,000. Plans by R. H. Smith, S., Bank-chambers.

COLWYN BAY.—Cleansing depot and A.R.P. equipment store at Colwyn Bay County Buildings for Denbighshire C.C. Gilbert D. Wiles, County Architect and Surveyor, Wrexham. G. A. Essex, Trafford Park, Penrhyn Bay, Llandudno, builders.

CHESTERFIELD.—R.D.C. proposes public shelters at 14 various places.

COSELEY.—U.D.C. proposes public shelters for 550 persons at 5 various places.



W. C. YOUNGMAN LTD
WANDSWORTH WORKS
WANDSWORTH ROAD
LONDON S.W.8

CROYDON.—C.B. made application to M.H. for consent to borrow £277,092 for A.R.P. work.

DARLINGTON.—T.C. approved shelters: Whessoe Foundry and Engineering Co., Ltd., for cleansing centre and first-aid station, Foundry-street; Jones and Rigby for Marks and Spencer, Northgate; United Automobile Services, Ltd., Grange-road; W. S. Hutton, Ltd., for Stephenson and Hawthorn, Ltd., first-aid rooms and control posts, Springfield-road; F. W. Woolworth and Co., Ltd., Northgate.

DEWSBURY.—Corporation have received sanction to provide air raid shelter accommodation for 10 per cent. of the population.

EDINBURGH.—Corporation, from plans by the City Architect, to provide shelters at various schools, at £25,000.

FELLING-ON-TYNE.—Direct labour under the Surveyor's supervision to be employed for erection of domestic surface shelters in backyards and trenches, and shelters at schools for U.D.C. U.D.C. applied for permission to build shelters for further 900 people.

GATESHEAD.—The following firms are sharing in building of domestic surface shelters for T.C.: W. Hall, Ltd., Gateshead; A. V. Clerey and Son, Sunderland; Tait and Kelly, Gateshead; H. Durham, Low Fell, Gateshead; and A. Pringle, Ltd., Gateshead.

GATESHEAD.—T.C. received sanction to build public shelters for 4,562 people, at £12,797.

GLASGOW.—Miller and Black, 132, West Regent-street, architects for shelters at 50-60, Union-street.

GLASGOW.—A.R.P. shelters to be erected as follows: Printing-works, Bridgeton, for D. Clark and Co., architects, Miller and Black, 132, West Regent-street, builders, Wilson Bros., Glasgow; at Buchanan and Killermount-streets, contractors, J. MacLaren and Co., Ltd., Glasgow; at Bath-street buildings, architect, J. Carruthers, 209, St. Vincent-street, Glasgow, contractors, T. Cooper and Co., Ltd., Glasgow; at Millrock-street for United Dairies, Ltd., architects, Miller and Black, contractors, Wm. Stevenson, Rutherglen; at Baptist Church Union and Scotland-buildings, contractors, D. MacIntyre, Glasgow; at Montrose and Cochran-streets, for T.C., contractors, R. Gilchrist and Son, Ltd., Glasgow.

GUILDFORD.—R.D.C. accepted £1,302 tender of Tribe and Robinson, Guildford, for underground report centre at Millmead House. R.D.C. also to construct concrete shelter at Millmead House at £208.

HEREFORD.—T.C. approved: Shelter, town hall basement, City Council; shelter at Stonebow-road, City Council.

HOLBORN.—B.C. to make application to the M.H., L.C.C. and Lords Commissioners for sanction to the borrowing of £3,950 for work in connection with the construction of the basement portion of Dombey-street housing scheme and adaptation of same for use as a public shelter. Application also to be made to M.H. for £1,650 for additional shelters in tenement buildings. M.H. considered the proposals with regard to the layout of the first-aid post at the National Hospital.

JARROW.—Contracts for conversion of the old post office into an A.R.P. report centre let to J. M. Black, Jun., Grange-road, Jarrow. Steelwork by Wright Anderson, Coulthards-lane, Gateshead.

KEIGHLEY.—E.C. proposes shelters at Utley school and St. Mary's Church of England school. E. G. Felgate, A.R.I.B.A., Borough Architect, College-st.

LANCHESTER.—S. to R.D.C. prepared scheme for domestic surface shelters.

LEWISHAM.—B.C. recommend shelter accommodation for the staffs at various public buildings, depots and clinics at £2,781, and concreting of Anderson steel shelters at £28,000.

LONDON.—L.C.C. have had under consideration proposals for protective works

in respect of those portions of fifteen mental hospitals included in the emergency hospital scheme in which mental patients are accommodated together with 200 beds each for neurological patients at Mill Hill school and Sutton training centre. The total cost of the proposed works is £229,816.

MIDDLESEX.—C.C. recommended that Brentford and Chiswick E.C. be informed that, subject to the approval of the B. of E., the C.C. approves proposal to provide measures for the protection during air raids of children attending public elementary schools, at £700.

NEWCASTLE-UPON-TYNE. — Newcastle and Gateshead Water Co. to build decontamination centre in Carliol-square. Plans by company's engineering staff, Pilgrim-street. Plans approved for shelters for the following firms: Northern General Transport Co., Ltd., Worswick-street; Northern Counties Institute for Deaf and Dumb, Great North-road; Rutherford College Girls' School, Maple-street; Northern Counties School of Cookery, Northumberland-road; Metropolitan Vickers Co., Ltd., Northumberland-road; Newcastle Co-op. Society, Newgate-street; C.W.S., West Blandford-Street; and F. W. Woolworth and Co., Ltd., Northumberland-street.

NORTH RIDING.—E.C. to erect 9 A.R.P. shelters at schools at Thornaby and Eston. J. W. White, County Hall, Northallerton, is architect. Cost, £4,000.

PONTEFRACT.—T.C. propose shelters at C.E. Girls' school, All Saints; St. Joseph's R.C. school mixed and infants' departments; Willow Park senior council school; girls' school and junior mixed, Willow Park.

POPLAR.—B.C. recommend the following: Fencing first-aid post at Transporter-yard, £660; the tender of D. West and Sons for waterproofing of 100 Anderson steel shelters at £2 10s. per shelter; shelters in Grosvenor-buildings, Manisty-street, to accommodate 1,158 persons, at £5,790; Goodwill House, Simpsons-road, communal surface shelter to accommodate 96 persons, at £380; Goodspeed House, Simpsons-road, and 144-146, Poplar High-street, communal surface shelter to accommodate 80 persons, at £320; St. James's House, Poplar High-street, communal surface shelters to accommodate 130 persons, at £480; the tender of E. Pollard and Co., Ltd., for 100 double surface shelters, at £3,228 15s.; erection of a further 100 single shelters by Reader Bros. at £23 13s. 10d. per shelter; surface shelters by G. J. Anderson, at £581, and London Co-operative Society, Ltd., at £2,133. first-aid post at Blondin-street, at £5,006; adapt three railway arches in Millwall recreation ground for shelter for 200 persons, at £596.—Plans passed for Laurence Kennard, 14, Railway-approach, S.E.1, workroom over air raid shelter at 219-221, Bow-road.

REASEHEATH.—Cheshire C.C. proposes public shelters.

RIPLEY, DERBYS. — U.D.C. proposes shelters for council schools for 915 scholars.

ROMFORD.—Lining of public trenches for T.C. by G. F. Jenkinson and Son, Ltd.

ROTHERHAM.—T.C. to seek £21,450 loan sanction for shelters. Plans by V. Turner, B.E.

SOUTHWARK.—B.C. proposing to use disused tube railway tunnel in Borough High-street for air raid shelter purposes. The B.E. has interviewed Dr. David Anderson, of Mott, Hay and Anderson, consulting engineers, as to the work to be carried out.

STAFFORD.—T.C. propose 11 public shelters, 14 wardens' posts and ambulance depot at South Walls Mortuary in Glover-street. Plans by W. Plant, B.S.

STOCKTON.—Contracts for shelters to L. Brown and Son, Beathouse-lane, Stockton, and to A. E. Hobbs, Hill House, Norton, Stockton.

STOKE-ON-TRENT.—For air raid shelter basement under existing furnishing department of M. Huntbach and Co., Ltd., Lamb-street, Hanley, contractors are Mollatt's, Church-street, Hanley, Stoke-on-Trent. Wood and Goldstraw, architects, Tunstall.

SUNDERLAND.—A.R.P. trenches to be erected by direct labour, at £6,750, at certain schools, and shelter at the Technical College for E.C.. Ditchburn, Ltd., secured lease of land in Warren-street for shelter. No contracts let. Architect, George E. Matkin, Barclay's Bank-chambers, Fawcett-street.

URMSTON.—U.D.C. proposes auxiliary fire station and shelters in Ashburton-road, Trafford Park. Plans by E. L. Leeming, S.

WANDSWORTH.—B.C. accepted the following tenders for domestic surface shelters each to hold 50 persons: Kirk and Kirk, Ltd., site No. 1, Edgley-road and Elmhurst-road, 10 shelters, at £1,690; No. 2, Olivette-street, Putney, 3 shelters, £438; No. 3, Sudlow-road and North Passage, 8 shelters, £1,322. Mercer Taylor and Co., No. 4, Prospect-cottages, Point Pleasant, 1 shelter, £148 19s. 9d. Kirk and Kirk, Ltd., site No. 1, "Angel" p.h., Tooting High-street, 1/50 persons, £153; site No. 4, rear of Tooting Baths and 5-15, Garratt-lane, 6/50 persons, £870; site No. 5, rear of Granada Cinema, Mitcham-road, 4/50 persons, £638. Bridge Walker, Ltd., site No. 3, Longmead-road, Tooting, 2/50 persons, £274. Mercer Taylor and Co., site No. 2, Holmbury-court, Upper Tooting-road, 1/50 persons, £156 0s. 4d. Council authorised the provision of air raid shelters for 50 persons on other 11 sites at £2,140. Finance Committee is to submit a supplemental estimate of £9,200 in connection with the provision of 46 public air raid shelters, each holding 50 persons.

WASHINGTON.—U.D.C. to construct 99 domestic surface shelters by contract. T. L. Broome, S.

WEST HARTLEPOOL. — E.C. approved shelters at certain schools.

WIGSTON.—U.D.C. proposes shelters for 1,200 persons.

WILLINGTON QUAY.—Contracts for first-aid post at the works of Hood, Haggie and Sons, Ltd., let to the Alnwick Construction and Engineering Co., Ltd., Alnwick.

YORK.—21 contractors are sharing the contract for construction of 2,200 domestic service shelters for T.C. Plans by C. J. Minter, City E. and S.

YORK.—W. Birch and Sons, Ltd., York, and R. J. Pulleyn and Sons, York, are contractors, at £2,102, for excavating and making up shelters at Haxby-road and St. Thomas schools and trenches at Acomb Church of England school and at Dringhouses School for T.C.

WEMBLEY
TOWN
HALL
ARCHITECT
CLIFFORD STRANGE ESQ
MARBLE
DECORATION
JOHN STUBBS
MARBLE & QUARZITE LTD
272 CROWN ST. LIVERPOOL 8
THESSALY RD. BATTERSEA SW8

CONTRACTS OPEN

It should be noted that contracts with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders: a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A.) for A.R.I.B.A.; B. of E for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A.; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor; T.C. for Town Clerk and Town Council; and U.D.C. for Urban District Council.

BUILDING.

DECEMBER 30.

Beckenham T.C.—Rest-room and dormitories at depot "A," adjoining the Technical Institute, Beckenham-rd. B.E. and S. Dep. £2.

Bexhill T.C.—First-floor extension and alterations to Town Hall. B.S.

Dorking U.D.C.—Adaptation of part of existing swimming bath into cleansing centre. S. S. Gettings, E. and S. Dep. £2 2s.

Durham C.C.—Public air raid shelters in Rural Districts of Sedgefield and Stockton, and Urban Districts of Brandon and Byshottles, Bishop Auckland and Spennymoor. Wm. J. Merrett, C.E. and S., 43, Old Elvet, Durham.

Keighley T.C.—Surface-type air-raid shelters at Utley C. school and St. Mary's Church of England school. B.E. Dep. £1 1s.

Warrington R.D.C.—48 public air-raid shelters. S.

JANUARY 1.

Anglesey E.C.—Conversion of Memorial Hall, Amlwch, for use as secondary school for boys and girls. Education Architect, Glanaber, Llangefni.

Brentford and Chiswick T.C.—50-person surface and semi-trench brick shelters. L. A. Cooper (L.), B.E. and S. Dep. £2 2s.

Cardiff T.C.—197 A.R.P. shelters at various schools. G. H. Whitaker, M.I.C.E., City Hall.

Plymouth T.C.—40 communal surface shelters in brick, concrete, or concrete blocks, on various sites. J. Paton Watson, City E. and S. Dep. £2 2s.

Wrexham T.C.—Demolition of town hall vaults and "Hand Inn." B.E., 1, Grosvenor-rd.

JANUARY 2.

Middlesbrough C.B.—Shelters under Victoria-sq. Cecil Gorman, B.E., Architect and S. Dep. £2 2s.

Warrington C.B.—Various work in connection with erection of air-raid shelters. B.E. and S.

JANUARY 3.

Blackwell R.D.C.—Two shelters at Shirebrook and two at South Normanton. A. H. Elliott, Assoc.M.Inst.C.E., Dale-cl., Chesterfield-rd. South, Mansfield. Dep. £2 2s.

Mere and Tisbury R.D.C.—Fire station at Tisbury, and carrying out works of repair and extension to fire station at Mere. W. H. C. Waters, architect, 40, Hendford-hill, Yeovil.

JANUARY 4.

Barry T.C.—Air raid surface shelters and basement protective works at elementary schools. E. R. Hinchcliff, F.S.I., Borough Engineer's Office. Dep. £1 1s.

Dorking U.D.C.—Proposed adaptation of basements for public shelters. S. S. Gettings, E. and S. Dep. £2 2s.

Liskeard R.D.C.—Boundary wall and fence around site of refuse dump at Landgreek-ln., Polperro. G. Rogers, Greenbank-rd.

JANUARY 5.

Croydon C.B.—Ladies' lavatories at Town Hall. B.E. Dep. £2 2s.

JANUARY 6.

Hemel Hempstead R.D.C.—Fire station at Kings Langley. B. Ll. Stephenson, S., 2, Marlowes. Dep. £2 2s.

Irish Land Commission.—3 houses and 2 out-offices, Tullyallen; 4 houses and 4 out-offices, Ballyglass. M. Deegan, sec., Upper Merrion-st., Dublin.

Leeds T.C. — A.R.P. domestic surface shelters, in brick. R. A. H. Livett, housing director, 26, Great George-st. Dep. £2.

JANUARY 8.

Hayes and Harlington U.D.C.—Control and report centre adjoining town hall. E. and S. Dep. £3 3s.

Llandudno U.D.C.—Construction on Great Orme of two pumphouses for Great Orme water supply. E. and S. Dep. £1.

JANUARY 9.

Darver (Co. Louth).—New National School for Rev. Canon Johnson. Ashlin and Coleman, architects, 7, Dawson-st., Dublin.

Enniskillen B.G.—Alterations and repairs to workhouse buildings. J. Donnelly, architect, Enniskillen.

Near Denbigh.—Alterations to kitchen in North Wales Sanatorium for King Edward VII Welsh National Memorial Assn. T. Taliesin Rees and Richard Holt, chartered architects, 64, Rodney-st., Liverpool, 1. Dep. £2 2s.

JANUARY 10.

Warrington E.C.—Conversion of playsheds into air-raid shelters at Beamont C. school and Bolton school. J. Y. Hughes, B.E. and S.

JANUARY 12.

***Sunderland C.B.**—Excavation, levelling of site and roadway construction; building four feeder switch-houses and building two generator switch-houses. B. Electrical E., Electricity Offices, Dunning-st. Dep. £2.

JANUARY 16.

***Romford T.C.**—Cleansing station, Havering-rd. B.E. and S. Dep. £2 2s.

South Africa.—Electric lighting power station and distribution network for Loxton Municipality, Cape Province. Dept. of Overseas Trade, Gt. George-st., S.W.1. (Ref. T.Y. 29657/39.)

JANUARY 19.

Shipley E.C.—Reconstruction of lavatories at Saltaire-rd. boys' school. H. Dawson, Surveyor and Architect.

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

JANUARY 1.

Erith T.C.—Wiring of lighting and water heating points, and extension to fire alarm system at Bedonwell Hill school extension, Belvedere. Electrical Engineer and Manager, "Electricity House," Pier-rd.

JANUARY 2.

Carmarthen T.C.—Heating of police depot, Chapel-st. G. L. Ovens, B.E. and S.

Manchester T.C.—Alteration of system of supply—rewiring of premises. H. C. Lamb, Chief E. and Manager, Electricity Dept., Town Hall. Dep. £1 1s.

Morecambe and Heysham T.C.—Exterior painting of housing properties. B.S. Dep. 10s.

JANUARY 3.

Chester (H.M.O.W.). — Installation of heating and hot water apparatus at telephone exchange, John-st. Mr. Hasse, H.M. Office of Works, Marine Hydro, Rhyl, Flints. Dep. £1.

JANUARY 5.

Yeovil R.D.C.—64 closet suites and provision of all labour and materials necessary for installation of water closets. C. A. Wilson, S., 28, Kingston.

JANUARY 10.

Teddington (H.M.O.W.).—Installation of cast iron grid floor in heavy laboratory at Admiralty Research Laboratory. Room 71, Ground Floor, H.M.O.W., London, S.W.1. Dep. £1.

MATERIALS, &c.

DECEMBER 30.

Enniskillen U.D.C.—Broken stones and stone chippings. J. Donnelly, B.S.

JANUARY 3.

Isle of Ely C.C.—Highway materials, C.S., March.

Perth and Kinross C.C.—Road materials. T. B. Marshall, County Clerk, York-pl., Perth.

JANUARY 4.

Mold U.D.C.—Timbers, roofing materials, tarpaulins. E. T. Williams, S.

JANUARY 5.

Macclesfield T.C.—Ironmongery materials, etc., for use in maintenance of Corporation houses. Borough Architect, Pear Tree House, Jordangate.

JANUARY 6.

Bexley T.C.—Highway materials. B.E. and S.

JANUARY 10.

Shipley U.D.C.—500 tons of Portland cement. H. Dawson, S.

JANUARY 15.

Lichfield T.C.—Highway Materials. City E. and S.

JANUARY 19.

Felixstowe U.D.C.—Highway materials. A. Hugh Pavitt, S.

JANUARY 27.

Stockport C.B.—Builders' Materials, for Gas Dept. F. Knowles, T.C.

ENGINEERING, IRON AND STEEL.

DECEMBER 29.

†**Birmingham T.C.**—Mains and connections, and induced draught plant and pipe ducts, etc., at Birmingham Infirmary. F. H. C. Wiltshire, T.C. Dep. £5 5s.

DECEMBER 30.

Leeds T.C.—Electric goods lift. F. Nicholls, City Electrical Engineer, 1, Whitehall-rd.

JANUARY 1.

Brixham U.D.C.—Removing damaged pile at Pier Head, replacing it with new pile, and other incidental work. S.

JANUARY 2.

Leeds T.C.—Electric bed lift to theatre and electrical block and electric service lift to pathological block, St. James' Hospital. Kitson, Parish, Ledgard and Pyman, Leeds, and E. Stanley Hall and Easton and Robertson, London. Dep. £2 2s.

JANUARY 5.

Durban City Water Works Dept.—Spun-iron pipes. T.C., Durban, Dept. of Overseas Trade, S.W.1. (Ref. T. 29785/39.)

Ripon T.C.—900 lin. yds. of 9-in. dia. salt-glazed ware pipe sewers, together with manholes and ancillary works; also 1,300 lin. yds. of 7-in. dia. spun-iron socket pipes, and small brick pumping station, in parishes of Ripon and Sharow. Silcock and Simpson, engineers, 10, Park-row, Leeds, 1.

JANUARY 8.

Hitchin R.D.C.—Water supply, comprising construction of about 1,400 yds. of 4 in. cast-iron mains and other appurtenant works. D. Balfour and Sons, civil engineers, 9, Stone-rd., Bromley. Dep. £2.

Llandudno U.D.C.—Reinforced concrete service reservoir and other works for Great Orme water supply. E. and S. Dep. £2.

JANUARY 9.

New Zealand Public Works Dept.—Steelwork for Hangatiki sub-station. Secretary, Public Works Supplies and Tenders Committee, Government-bldgs., Wellington.

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JANUARY 15.

Godalming T.C.—Sewers and sewage disposal works. B.S. Dep. £2 2s.

South African Railways and Harbours Stores Department.—Bridgework. Sec. to Tender Board, Headquarter Offices, Room 420, Johannesburg.

Worthing T.C.—Reinforced concrete reservoir at Patching. B.E. Dep. £2 2s.

JANUARY 18.

South African Railways and Harbours Administration.—Flat steel. Chief Stores Superintendent, New Park Station-chams., Rissik-st., Johannesburg.

ROAD, SEWERAGE AND WATER WORKS.

Larne T.C.—Drainage of 51 to 61, Circular-rd. J. M. O'Brien, T.C.

Leeds Corporation.—Cement-lined socket and spigot spun-iron pipes. K. L. Forster, M.Inst.C.E., Waterworks E. and Manager, Waterworks Dept.

JANUARY 1.

Gloucestershire C.C.—Improvement works in Mortimer-rd, Filton; Walls Court-rd., South Filton, and Cleve-rd., Filton. C.S., Gloucester. Dep. £2 2s.

JANUARY 2.

Scotland.—Gas-piping installations for 378 houses for Scottish Special Housing Assn., Ltd. S. Bunton, 235, Bath-st., Glasgow, C.2.

JANUARY 3.

Chepping Wycombe T.C.—1½ miles of 9 in. dia. glazed stoneware pipe sewer, together with necessary house connections, etc. J. A. Parkinson, B.S. Dep. £2 2s.

Leamington Spa T.C.—Making-up Llewellyn-rd (part of) and Eagle-st. (parts of). J. Sutcliffe, B.E.

Scotland.—Supplying and laying about 880 lin. yds. of 3-in., 2-in. and 1½-in. asbestos cement pressure pipes; constructing reinforced concrete storage tank and relative works; and supplying and laying about 620 lin. yds. of 3-in. dia. spun iron water mains at Middleton, Gorebridge, Widlothian, for Scottish Special Housing Assn., Ltd. Parker, Gordon and Ogilvie, engineers, 3, Palmerston-pl., Edinburgh, 12.

Wellingborough U.D.C.—Approximately 9 miles of 12 in. cast-iron water main, from Wellingborough to point near Boughton Park, on Kettering-Stamford-rd. R. Kilby, E. Dep. £2 2s.

JANUARY 4.

Leeds T.C.—Kerbing, flagging, tar paving footpaths and carriageways in Roxholme-av., Roxholme-rd., Roxholme-pl., Parkwood-rd., Parkwood-av., Parkwood-dr., and kerbing, tar paving foothpaths and carriageways in Scott Hall, Brooklands. Highways Engineer, 155, Kirkstall-rd. Dep. £1 1s.

Manchester T.C. — Sewering, draining, kerbing, flagging (artificial), and paving (tarred macadam) of Dene-rd., Didsbury, from Wilmslow-rd. to point approximately 160 yds. distant in westerly direction, and Wilmslow-rd. improvement, Didsbury, at junction with Dene-rd. City Engineer's Office, Southern District Surveyor's Department, Town Hall. Dep. £2 2s.

JANUARY 5.

Neath T.C.—Reconstruction of surface water drain in Cimla-rd. at Cimla Lodge H. Alex. Clarke, B.E.

JANUARY 6.

King's Lynn T.C.—Laying of approximately 1,754 lin. yds. of 9-in. glazed stoneware pipe sewers. J. C. Matthew, B.E. Dep. £1 1s.

Neath T.C.—Road and footpath surfaces on Llantwit housing site and Crynallt housing site. H. Alex. Clarke, B.E.

Newmarket R.D.C.—Water mains and services at Fordham, Isleham; near cemetery, Swaffham Bulbeck; Swaffham Prior, etc. Building S. Dep. 10s. 6d.

Public Appointments.

DECEMBER 30.

Peterborough T.C.—Architectural Assistant. A. J. Reeves, T.C.

Walsall C.B.—Repairs Supervisor. A. E. Bywater, Housing Manager.

NO DATE.

***Winchester (War Office).**—Electrical and mechanical mechanists. D.C.R.E., R.E. Office, The Barracks, Winchester.

CURRENT AND PROPOSED BUILDING WORK*

Barnsley.—C.B. approved: Extension to machine shop, Summer-la., Reynolds Bros. (Barnsley), Ltd.; rebuilding of "Grey Horse Inn," School-st., Old Town, Hewitt Bros, Ltd., Tower Brewery, Grimsby.

Bedlington.—U.D.C. to apply for sanction to complete erection of 70 houses and to build store at Council depot.

Bermondsey.—L.C.C. sanctioned borrowing by B.C. of £3,100 for housing purposes.—Council received sanction to borrowing £7,874, to cover further expenditure on three housing schemes, as follow: Leroy-st., £3,388; Southwark Park-rd., £2,385; Elim-st., £2,101.

Billingham-on-Tees.—Plans to be prepared for U.D.C. for additional office accommodation at fire station in conjunction with proposal for new recreation room. J. H. Hill, S.

Blackburn.—C.E. Diocesan Authorities proposing completion of Blackburn Cathedral (architect, W. A. Forsyth (F.), 12, Stratford-pl., London, W.1).

Brighton.—T.C. approved: Proposed canteen, factory buildings, Moulsecoomb-way, East Moulsecoomb Estate, Falmer, Allen, West and Co., Ltd.; alterations, "Gardeners Arms," 9, Terminus-rd., Tamplin and Son's Brewery, Brighton, Ltd.; alterations and additions, "Stag Inn," 33, Upper Bedford-st., Kemp Town Brewery, Brighton, Ltd.

Burton Latimer.—U.D.C. approved: Seven new biscuit ovens for Weetabix, Ltd.

Bury.—Corporation received M.H. sanction to demolish 48 houses in Elton.

Carlisle.—Local Council of Y.M.C.A. propose assembly hall for services at Rickergate.

Chesterfield.—Rev. E. W. Platt and Parochial Council propose George Stephenson Memorial chancel at Holy Trinity Church, at £2,000. Norman Best, architect, 82, Windsor-rd., Mansfield.

Darlaston.—U.D.C. approved plans: Mission church at Bentley for Rev. C. E. Turner, vicar, and Parochial Council of St. Giles' Church, Willenhall.

Darwen.—T.C. to proceed with health centre in Union-st. E. Marsden, B.E.

Fulham.—B.C. approved: Haymills (Contractors), Ltd., Hanger Green, Western-av., W.5, builders, for alteration Wandsworth Bridge petrol service station, Townmead-rd.

Gravesend.—Scheme to construct underground police and fire station at Gravesend, at £11,000 approved by M.H.

Irthlingborough.—U.D.C. approved: Extensions to Station-rd. factory of Keunen Bros.

Isle of Wight,—C.C. to carry out sea protective works at Bouldnor, at £17,000.

Leamington Spa.—T.C. approved: Offices, etc., Tachbrook-rd., Lockheed Hydraulic Brake Co., Ltd.

Lichfield.—City S. reported that Lichfield Conduit Lands received application from Hayes Bridge Estate for water main to be extended in Curborough-rd. to supply 50 houses proposed by them.

Littlehampton.—H. B. Steel and Sea View Café, Ltd., planning large development on sea front, including shops, hotel and garages.

Manchester.—Housing Committee proposing 219 houses, at £89,050. J. Hughes, Housing Director.

Manchester.—T.C. approved: Store and showroom, rear of existing market hall, Barlow Moor-rd., Chorlton-cum-Hardy, for J. A. Taylor, Deansgate House, 274, Deansgate; additions to factory, Harper-rd., Northenden, for G. P. A. Tools and Gauges, Ltd., Derby-st., Cheetham (Matley, Brotherton and Mills, architects, 39, Oxford-st.); rebuilding of factory after fire, Vickers-st. and Pochin-st., Miles Platting, for Frank Walters and Co., Ltd. (Cruickshank and Seward, architects, 16, Princess-st.; recreation club house, Delaunay's-rd., Blackley, for British Dyestuffs Corporation, Ltd., Blackley-wks.

Middlesbrough.—Kitching and Co., 21, Albert-rd., prepared plans for alterations and additions to North Ormesby Hospital, Westbourne-gr.—Additions proposed at Albert-mews for Hinton and Sons (architects, Archibald and Archibald, 25, Albert-rd., Middlesbrough).

Orrell.—Pennington and Unwin, architects, Malvern-chams., Library-st., Wigan, prepared plans for Methodist church, at £7,000, for Methodist Union Assn., Rev. W. Swales, Superintendent Minister.

Portsmouth.—T.C. approved: Corporation, first-aid post, St. George's-sq., Portsea; Curtis and Sons, Ltd., warehouse, London-rd., Hilsea.

Rushden.—U.D.C. approved: Additions to factory, Irchester-rd., Strong and Fisher; additions to factory in Allen-rd., P. Collins and Co.

Ryde.—S. to T.C. to continue preparation of plans for proposed new offices.

Slough.—T.C. approved:—Pasolds, Ltd., sub-station, off Station-rd., Langley.

Southport.—B.E. recommended M.H. to give loan sanction and permission to proceed with new Meols Cop senior school.

Stockton-on-Tees.—T.C. applying for M.H. consent to proceed with new £30,000 maternity home.

Stourbridge.—Governors of King Edward Sixth School propose extensions to gymnasium changing rooms and additional accommodation for staff.

Swansea.—B. Electrical E. recommended installation of further switchgear, reconstruction of existing switchgear, and necessary building work at Tir John Station, at £12,778.—C.B. recommended new switch-room at Tir John Station, at £4,000.—Chief E. to provide protection to pumping stations on main drainage scheme, at approximately £250.—Plans passed: Alterations and additions, "Ivorites Arms," Dinas-st., Wm. Hancock and Co., Ltd.; police house, Birchgrove-rd., Glais, Watch Committee; alterations and additions, Wind-st., Baldwins, Ltd.; offices, Morfydd-st., Morgan, Harris and Co.; alterations and additions, 265, Oxford-st., H. Samuel, Ltd.

Walsall.—T.C. approved plans for factory extensions at Wisemore for Reuben Craddock and Sons, Ltd., 72, Wisemore.

Walsingham.—R.D.C. received M.H. sanction for 88 houses.

Wolverhampton.—T.C. approved: A. T. and Bertram Butler, Penn-rd., new public-house, "Roebuck" inn; Marcus Brown and Lewis, Park-la., extension to factory; J. H. Turner, Castle-st., rebuilding garage and store; F. G. Roberts, off Guy-av., factory; Whatton and Sons, Bingley-st., extension to factory.

* See also List of Contracts Open.

*** **In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

NEW BUILDINGS IN LONDON

CAMBERWELL.—BUILDING.—The B.C. has now decided to postpone for the duration of the war the erection of the health centre in Camberwell-road and the welfare centre, Lordship-lane. This statement corrects the paragraph published in our issue of December 8.

SLOUGH.—BUILDING.—The T.C. approved plans for Messrs. Artex (1931), Ltd., for extensions, off Bath-road, Cippenham, and Messrs. Nobel Chemical Finishes, Ltd., for extensions to despatch department, off Wexham-road.

WEST HAM.—The T.C. has approved the following plans:—Gum store, A. Boake, Roberts and Co.'s premises, Carpenters-road, Ley, Colbeck and Partners, architects; alterations, 37 and 39, Station-road, H. G. Needham and Son; extension to moulding shop at Dexine, Ltd., premises, Abbey-lane, A. C. S. Wheeler.

PUBLIC WORKS

BLACKPOOL.—For erection of a building to house the electrical equipment at the new gas works at Marton the T.C. has accepted the tender of the Executors of J. H. Cookson.

BRIGHTON.—C.B. has accepted the tender of Messrs. Bierrum and Partners, 10, Sudbury-hill, Harrow, at £115,920, for civil engineering works. Mr. W. N. C. Clinch, engineer and manager, Brighton Corporation Electricity Undertaking, Electric House, Castle-square, Brighton, 1, and W. T. Halcrow, consulting engineer, 7, Burkes-parade, Beaconsfield.

WAR-TIME APPLICATIONS OF STEEL SCAFFOLDING.

The prize of £10 offered by the Steel Scaffolding Co., Ltd., for the best commercial war-time application of steel scaffolding, not hitherto employed, has been awarded to Mr. H. W. Banyard, Garden Flat, 171, Randolf-avenue, W.9, who submitted a design for the provision of equipment, invaluable to the fighting forces and others dependent upon improvised devices in the field.

A special prize of £5 has also been awarded to Mr. H. A. Benson, M.I.Struct.E., A.F.A.R.P.I., 8, Acomb-court, Lansdowne-way, S.W.8.

This competition, which has been carried out in "Meccano," has been designed to extend the already wide applications of steel scaffolding to war-time purposes, which have gained additional importance in view of the restrictions upon timber.

Building Operatives and the B.E.F.

The British Expeditionary Force is in need of several thousands of bricklayers, carpenters, concreters and other building and road-making operatives for work in the back areas behind the line. The schedule of reserved occupations is being waived to enable unemployed men in those occupations to join the Royal Engineers. They will receive tradesmen's rates of pay. Unemployed men in these occupations have been debarred hitherto from joining up, but now they will be able to volunteer even if they are over the reserved age.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st DECEMBER, 1939

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.
Aberavon	1/8	1/3½
Aberdare	1/8	1/3½
Abergavenny	1/7½	1/2¾
Abingdon	1/6½	1/2
Accrington	1/8	1/3½
Aldeburgh	1/4½	1/0½
Aldershot	1/6½	1/2
Alfreton	1/8	1/3¼
Alnwick	1/7½	1/2¾
Altrincham	1/8	1/3¼
Amble	1/7½	1/2¾
Amersham	1/6½	1/2
Ammanford	1/8	1/3½
Andover	1/6	1/1¾
Ardingley	1/6	1/1¾
Arundel	1/6	1/1¾
Ascot	1/6	1/1¾
Ashby-de-la-Zouch	1/6½	1/2
Ashford (Kent)	1/6	1/1¾
Ashford (Middlesex)	1/8	1/3¼
Ashington	1/7½	1/2¾
Ashtead	1/8	1/3½
Ashton-under-Lyne	1/8	1/3½
Aylesbury	1/6	1/1¾
Aylsham	1/5	1/1
Bagshot	1/6	1/1¾
Banbury	1/6	1/1¾
Barnsley	1/8	1/3½
Barnstaple	1/6	1/1¾
Barrow-in-Furness	1/8	1/3½
Barry	1/8	1/3½
Basingstoke	1/6	1/1¾
Bath	1/7½	1/2¾
Batley	1/8	1/3¼
Beaconsfield	1/6½	1/2
Beccles	1/4½	1/0½
Bedford	1/7½	1/2¾
Berkhamsted	1/6	1/1¾
Berwick	1/7½	1/2¾
Beverley	1/8	1/3½
Bexhill-on-Sea	1/6½	1/2
Bideford	1/6	1/1¾
Biggleswade	1/5½	1/1¼
Billericay	1/5½	1/1¾
Birchington	1/6	1/1¾
Birkenhead	‡§1/10	¶
Birmingham	1/8	1/3½
Bishop Auckland	1/8	1/3½
Bishops Stortford	1/7	1/2½
Blackburn	1/8	1/3½
Blackpool	1/8	1/3½
Blyth	1/8	1/3½
Bognor Regis	1/6	1/1¾
Bolton	1/8	1/3½
Bournemouth	1/7	1/2½
Bracknell	1/6	1/1¾
Bradford	1/8	1/3½
Bradford-on Avon	1/5*	1/1
Braintree	1/6	1/1¾
Brentwood	1/7½	1/2¾
Bridgwater	1/6½	1/2
Bridlington	1/7½	1/2¾
Brighouse	1/8	1/3½
Brighton	1/7	1/2½
Bristol	1/8	1/3½
Broadstairs	1/6	1/1¾
Bromsgrove	1/7½	1/2¾
Buckley	1/8	1/3½
Bungay	1/4	1/0½
Burnham-on-Crouch	1/4½	1/0½
Burnley	1/8	1/3½
Burslem	1/8	1/3½
Burton-on-Trent	1/8	1/3½
Bury	1/8	1/3½
Bury St. Edmunds	1/5½	1/1½
Buxton	1/7½	1/2¾
Byfleet	1/6½	1/2
Cambridge	1/7½	1/2¾
Canterbury	1/6	1/1¾
Cardiff	1/8	1/3½
Carlisle	1/8	1/3½
Carnforth	1/8	1/3½
Castleford	1/8	1/3½
Caterham	1/8	1/3½
Chard	1/5*	1/1
Chatham	1/7	1/2½
Chelmsford	1/7½	1/2¾
Cheltenham	1/7	1/2½
Chepstow	1/7	1/2½
Chertsey	1/7	1/2½
Chester	1/8	1/3½
Chesterfield	1/8	1/3½
Chichester	1/6	1/1¾
Chorley	1/8	1/3½
Cirencester	1/5½*	1/1¼
Clacton	1/6	1/1¾
Cleveleys	1/8	1/3½
Clitheroe	1/8	1/3½
Cobham (Surrey)	1/7	1/2½
Colchester	1/7½	1/2¾
Colwyn Bay	1/7	1/2½
Congleton	1/7½	1/2¾
Coventry	1/8	1/3½
Cranbrook	1/6	1/1¾
Cranleigh	1/6	1/1¾
Crawley	1/6	1/1¾
Crewe	1/7½	1/2¾
Cromer	1/5	1/1
Crowborough	1/6	1/1¾
Cuckfield	1/6	1/1¾
Darlington	1/8	1/3½
Darwen	1/8	1/3½
Daventry	1/6½	1/2
Deal	1/6	1/1¾
Denbigh	1/6½	1/2
Derby	1/8	1/3½
Devizes	1/4½*	1/0½
Dewsbury	1/8	1/3½
Didcot	1/6	1/1¾
Diss	1/4½	1/0½
Doncaster	1/8	1/3½
Dorchester	1/5½*	1/1½
Dorking	1/6½	1/2
Dover	1/6	1/1¾
Dovercourt	1/6	1/1¾
Driffield	1/6½	1/2
Droitwich	1/7½	1/2¾
Dudley	1/8	1/3½
Dunstable	1/6½	1/2
Durham City	1/8	1/3½
Eastbourne	1/7	1/2½
E. Glam. (Mon. Val.)	1/8	1/3½
East Grinstead	1/6	1/1¾
Edenbridge	1/6	1/1¾
Ely	1/4½	1/0½
Epping	1/8	1/3½
Exeter	1/7½†	1/2¾
Exmouth	1/6½	1/2
Fakenham	1/5	1/1
Falmouth	1/6½	1/2
Fareham	1/7	1/2½
Faversham	1/6	1/1¾
Felixstowe	1/7	1/2½
Filey	1/6½	1/2
Fleetwood	1/8	1/3½
Flint	1/8	1/3½
Folkestone	1/6	1/1¾
Frinton-on-Sea	1/6	1/1¾
Frome	1/5*	1/1
Gainsborough	1/7	1/2½
Gateshead	1/8	1/3½
Gillingham (Kent)	1/7	1/2½
Glossop	1/8	1/3½
Gloucester	1/7½†	1/2¾
Godalming	1/6	1/1¾
Goole	1/8	1/3½
Gosport	1/7½	1/2¾
Grantham	1/7	1/2½
Gravesend	1/7½	1/2¾
Great Yarmouth	1/6	1/1¾
Grimsby	1/8	1/3½
Guildford	1/6	1/1¾
Guilsborough	1/6½	1/2
Halifax	1/8	1/3½
Hanley	1/8	1/3½
Harpenden	1/7	1/2½
Harrogate	1/8	1/3½
Hartlepools	1/8	1/3½
Harwich	1/6	1/1¾
Haslemere	1/6	1/1¾
Hastings	1/6	1/1¾
Hatfield	1/7½	1/2¾
Haywards Heath	1/6	1/1¾
Hednesford	1/7½	1/2¾
Hemel Hempstead	1/7	1/2½
Henley-on-Thames	1/6	1/1¾
Hereford	1/6*	1/1¾
Herne Bay	1/6	1/1¾
Hertford	1/7½	1/2¾
Heysham	1/8	1/3½
Hitchin	1/6½	1/2
Hoddesdon	1/7½	1/2¾
Holt (Norfolk)	1/4½	1/0½
Horley	1/6	1/1¾
Horsham	1/6	1/1¾
Horwich	1/8	1/3½
Huddersfield	1/8	1/3½
Hull	1/8	1/3½
Hunstanton	1/5	1/1
Huntingdon	1/5½	1/1½
Ilfracombe	1/6	1/1¾
Ingatestone	1/6½	1/2
Ipswich	1/7½	1/2¾
Isle of Thanet	1/6	1/1¾
Isle of Wight	1/5	1/1
Keighley	1/8	1/3½
Kenilworth	1/8	1/3½
Kettering	1/7½	1/2¾
Kidderminster	1/7½	1/2¾
King's Lynn	1/6	1/1¾
Kirkham	1/8	1/3¼
Knowle	1/7½	1/2¾
Lancaster	1/8	1/3½
Leamington	1/8	1/3½
Leatherhead	1/7	1/2½
Leeds	1/8	1/3½
Leicester	1/8	1/3½
Leighton Buzzard	1/5	1/1
Letchworth	1/6½	1/2
Lewes	1/6	1/1¾
Lichfield	1/7	1/2½
Lincoln	1/8	1/3½
Littlehampton	1/6	1/1¾
Liverpool	‡§1/10	¶
Llandudno	1/7	1/2½
Llanelly	1/8	1/3¼
London—		
12 m. radius	1/9½*	1/4¼
12-15 m. radius	1/9*	1/4
Long Eaton	1/8	1/3½
Longton	1/8	1/3½
Loughborough	1/8	1/3¼
Louth	1/6½	1/2
Lowestoft	1/6	1/1¾
Luton	1/7½	1/2¾
Macclesfield	1/7½	1/2¾
Maidenhead	1/6½	1/2
Maidstone	1/6½	1/2
Malvern	1/6½	1/2
Manchester	1/8	1/3¼
Manningtree	1/5	1/1
Mansfield	1/8	1/3½
March	1/5	1/1
Margate	1/6	1/1¾
Market Harborough	1/7	1/2½
Matlock	1/6½	1/2
Melton Constable	1/4½	1/0½
Melton Mowbray	1/7	1/2½
Merthyr	1/8	1/3¼
Middlesbrough	1/8	1/3½
Middleton	1/8	1/3½
Middlewich	1/7½	1/2¾
Milford Haven	1/6½	1/2
Morecambe	1/8	1/3¼
Morley	1/8	1/3¼
Mundesley	1/5	1/1
Nantwich	1/7½	1/2¾
Nelson	1/8	1/3½
Newark-on-Trent	1/7½	1/2¾
Newbury	1/6	1/1¾
Newcastle-on-Tyne	1/8	1/3½
Newcastle-u.-Lyme	1/8	1/3¼
New Forest	1/5	1/1
Newmarket	1/6	1/1¾
Newport, Mon.	1/8	1/3½
Newport Pagnell	1/6	1/1¾
Northampton	1/8	1/3½
Norwich	1/8	1/3½
Nottingham	1/8	1/3½
Nuneaton	1/8	1/3½
Oakham	1/6½	1/2
Oldham	1/8	1/3½
Ormskirk	1/8	1/3½
Oxford	1/7½	1/2¾
Oxted	1/6½	1/2
Paignton	1/7½	1/2¾
Peterborough	1/7½	1/2¾
Plymouth	1/8	1/3½
Pontefract	1/8	1/3½
Pontypridd	1/8	1/3½
Port Talbot	1/8	1/3½
Portsmouth	1/7½	1/2¾
Preston	1/8	1/3½
Pulborough	1/6	1/1¾
Ramsgate	1/6	1/1¾
Reading	1/7½	1/2¾
Redditch (Northern)	1/7	1/2½
Redhill	1/6½	1/2
Ripon	1/6½	1/2
Rochdale	1/8	1/3½
Rochester	1/7	1/2½
Rugby	1/8	1/3½
Saffron Walden	1/5*	1/1
St. Albans	1/7½	1/2¾
St. Helens	1/8	1/3½
St. Neots	1/5	1/1
Salisbury City	1/5*	1/1
Salisbury Plain	1/7*	1/2½
Sawbridgeworth	1/6½	1/2
Saxmundham	1/4½	1/0½
Scarborough	1/7½	1/2¾
Scunthorpe	1/8	1/3½
Selby	1/8	1/3¼
Sevenoaks	1/6½	1/2
Sheerness	1/5½	1/1½
Sheffield	1/8	1/3½
Shipley	1/8	1/3½
Shoeburyness	1/7½	1/2¾
Shoreham	1/7	1/2½
Shrewsbury	1/7	1/2½
Sittingbourne	1/6	1/1¾
Skegness	1/7	1/2½
Sleaford	1/6½	1/2
Slough	1/7	1/2½
Southampton	1/7½	1/2¾
Southend-on-Sea	1/7½	1/2¾
Southport	1/8	1/3½
South Shields	1/8	1/3½
Spalding	1/6	1/1¾
Stafford	1/7½	1/2¾
Staines	1/7	1/2½
Stamford	1/7	1/2½
Stevenage	1/6½	1/2
Stockport	1/8	1/3½
Stockton-on-Tees	1/8	1/3½
Stoke-on-Trent	1/8	1/3½
Stourbridge	1/7½	1/2¾
Stourport	1/7½	1/2¾
Stowmarket	1/5	1/1
Stratford-on-Avon	1/7	1/2½
Stroud	1/6½†	1/2
Sunderland	1/8	1/3½
Sutton Coldfield	1/8	1/3½
Swaffham	1/4½	1/0½
Swanage	1/6*	1/1½
Swansea	1/8	1/3½
Swindon	1/6½*	1/2
Tamworth	1/7½	1/2¾
Taunton	1/6	1/1½
Tenterden	1/6	1/1¾
Thames Haven	1/8	1/3½
Thetford	1/5½	1/1½
Thorpe Bay	1/7½	1/2¾
Todmorden	1/8	1/3½
Tonbridge	1/6½	1/2
Torquay	1/7½	1/2¾
Totnes	1/6	1/1¾
Trowbridge	1/5*	1/1
Truro	1/5	1/1
Tunbridge Wells	1/6½	1/2
Uppingham	1/6½	1/2
Uttoxeter	1/6½	1/2
Wakefield	1/8	1/3½
Walsall	1/8	1/3½
Walsden	1/8	1/3½
Walton-on-Naze	1/6	1/1¾
Ware	1/7½	1/2¾
Warminster	1/5*	1/1
Warrington	1/8	1/3½
Warwick	1/8	1/3½
Wellingborough	1/7½	1/2¾
Welwyn	1/7	1/2½
Welwyn Gar. City	1/8	1/3½
Wells (Norfolk)	1/4½	1/0½
West Bromwich	1/8	1/3½
Westcliff-on-Sea	1/7½	1/2¾
Weston-super-Mare	1/7	1/2½
Weybridge	1/7	1/2½
Weymouth	1/5½*	1/1½
Whitby	1/7	1/2½
Whitstable	1/6	1/1¾
Widnes	1/8	1/3½
Wigan	1/8	1/3½
Wigton	1/6½	1/2
Willington	1/7½	1/2¾
Wilmslow	1/8	1/3½
Winchester	1/6½	1/2
Windermere	1/6½	1/2
Windsor	1/7	1/2½
Wisbech	1/5½	1/1½
Witham	1/6	1/1¾
Woking	1/6½	1/2
Wokingham	1/6	1/1¾
Wolverhampton	1/8	1/3½
Woodbridge	1/5½	1/1½
Worcester	1/7½	1/2¾
Workington	1/6½	1/2
Worksop	1/7½	1/2¾
Worthing	1/6	1/1¾
Wrexham	1/7½	1/2¾
Wroxham	1/5½	1/1½
Wycombe	1/6½	1/2
Wymondham	1/5	1/1
Yeovil	1/6½	1/2
York	1/8	1/3½

* Painters 1d. less than other Craftsmen. † Painters ½d. less than other Craftsmen. ‡ Plasterers 1/10½.

¶ Tradesman's Labourers 1/4½ Navvies and General Labourers, 1/4.

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland, see page 890

PRICES CURRENT OF MATERIALS*

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry. The softwood prices are the maxima established by the Timber Control Department. At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities. Lead can only be obtained for Government or A.R.P. work and urgent repairs.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads. £ s. d.
Best Stocks 4 15 0
Second Hard Stocks 4 8 0

Per 1,000. Delivered at London Goods Stations.

2½ in. Phorpres.	King's Cross Station. per 1,000.		To sites in W.C. District. per 1,000.	
	s.	d.	s.	d.
Pressed bricks	46	3	50	6
Cellular bricks	46	3	50	6
Keyed bricks	48	3	52	6
Cellular Keyed bricks	48	3	52	6
Rustic bricks	*66	3	*70	6
Cellular Rustic bricks	*66	3	*70	6
Single Bullnose	64	3	68	6
White bricks	*66	3	*70	6
Sandfaced bricks	—		75	6

* Subject to a special discount of 2s. per 1,000 ft. accompanied by order for Pressed.

	£	s.	d.
White Midhurst Facing Bricks (delivered London site)	3	12	6
Best blue Pressed Staffs	8	6	6
Do. Bullnose	8	16	6
Blue Wire Cuts	7	4	0

Best Stourbridge Fire Brick :—
2½ in. ..... 7 15 0 3 in. 8 15 0

GLAZED BRICKS—

Best White Ivory and Salt Glazed Stretcher.	24	0	0
Headers	23	10	0
Quoins, Bullnose and 4½in. Flats	30	10	0
D'ble Str'tch'rs	32	10	0
D'ble Headers	29	10	0
One side & two ends	33	10	0
Two sides & one end	34	10	0
Splays and Squints	31	0	0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

2" per yd. sup. ..	2	3	3" per yd. sup. ..	2	9
2½" " "	2	6	4" " "	3	1

CLINKER CONCRETE.

2" per yd. sup. ..	1	6	3" per yd. sup. ..	2	0
2½" " "	1	8	4" " "	2	4

CRANHAM TERRA COTTA.

2" per yd. sup. ..	3	0	3" per yd. sup. ..	3	8
2½" " "	3	6	4" " "	4	7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2	6	12" x 9" x 3"	3	0
12" x 9" x 2½"	2	9	12" x 9" x 4"	3	9

SAND.

Per yard super d/d. Free on site, London.

Thames Ballast	7	9	per yd.	
Pit Ballast	7	3	" "	delivered 2 miles radius Paddington.
Pit Sand	9	9	" "	
Washed Sand	10	9	" "	
¾in. Shingle	8	0	" "	
¾in. Broken Brick	12	0	" "	
Pan Breeze	8	3	" "	

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable) :—

	£	s.	d.
1 ton loads and upwards site ..... Per ton	2	5	0
1 ton to 4 tons site	2	8	0
Alongside Vauxhall in 80-ton lots	2	2	6
"Ferrocrete" Rapid Hardening Cement :—			
4 ton loads and upwards site	2	11	0
1 ton to 4 tons site	2	14	0
Alongside Vauxhall in 80-ton lots	2	8	6

Stores in Reserved Bins at Works 1/6 ton extra.

NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett, if returned in good condition within three months, carriage paid.

"Aquacrete" Water Repellent, "Blue Circle" Cement, 30/- per ton extra on ordinary "Blue Circle" Portland Cement prices.

"Colorcrete" Nos. 1 and 2 Coloured Rapid Hardening Portland Cement in 1-cwt. paper bags free (non-returnable) in 1-ton lots and upwards site 3 14 0

"Colorcrete," not rapid-hardening, in 1-cwt. paper bags free (non-returnable), according to colour, from £7 to £15 10s. per ton.

"Snowcrete" White Portland Cement in 1-cwt. paper bags free (non-returnable)

1 ton and upwards site	8	15	0
Super Cement (Waterproof) paper bags free	3	15	0
Roman Cement £6 15 Keene's Cement, White	5	10	0
Parian Cement £5 10 " " Pink	5	2	6

Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£	s.	d.		£	s.	d.
Coarse, Pink	3	0	0	Sirapite, Coarse ..	3	10	0
" White ..	3	10	0	" Finish ..	3	18	0
Pioneer	3	10	6				
Super Carbo	2	7	6	4-ton loads and over London Area, paper bags free.			
Carbo Setting....	2	12	6				
Best Ground Blue Lias Lime	1	17	6	Grey Stone Lime	2	2	0
				Chalk Lime	2	2	0
Granite Chippings	1	5	0	Hair per cwt. ..	2	7	6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.

Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube .... s. 2 d. 10½

BEER STONE—RANDOM BLOCK—
Free on rail at Seaton Station. per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. " 3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—

	s.	d.
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube.....	4	5
Do. do. delivered on road waggons as above stations, per ft. cube.	4	6
White basebed, 3d. per ft. cube extra.		
NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.		

HOPTON-WOOD STONE—

F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb.	14	0
Sawn two sides.	22	6

HOPTON-WOOD STONE—

Sawn three or four sides.	27	9

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.

6 in. sawn two sides landings to sizes (under 30 ft. super) ..... per ft. super	5	0
6 in. rubbed two sides, ditto .. "	5	6
3 in. sawn two sides slabs (random sizes) ..... "	2	3½
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) ..... "	1	6½
1½ in. to 2 in., ditto. ..... "	1	3½

HARD YORK—
Delivered at any Goods Station, London.

Scrappled random blocks. ..... per ft. cube	6	3
6 in. sawn two sides landings to sizes (under 40 ft. super) ..... per ft. super	5	1½
6 in. rubbed two sides, ditto .. "	6	1½
4 in. sawn two sides slabs (random sizes) ..... "	3	1½
3 in. ditto ditto ..... "	2	5
2 in. self-faced random flags ..... Per yd. super	7	6

CAST STONE.

Delivered in London are in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

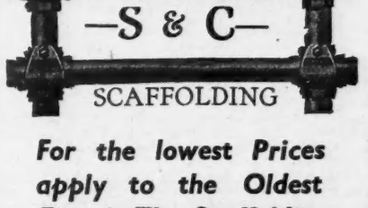
Average price for prime quality.	£	s.	d.
Dry Austrian Wainscot, per ft. cube.	0	17	0
Dry American and/or Japanese Figured Oak, per ft. cube. ..... 10 0 to	0	12	6
Dry American and/or Japanese plain Oak, per ft. cube	0	11	6
Dry sq. edged Honduras Mahogany, per ft. cube.	0	15	0
Dry log-cut Honduras Mahogany, per ft. cube. ..... 12 6 to	0	16	0
Dry Cuba Mahogany, per ft. cube.	0	18	0
Dry Teak, per ft. cube.	0	14	0
Dry American Whitewood, per ft. cube.	0	10	6
Dry Australian Walnut, per ft. cube	0	17	0
Dry Queensland Silky Oak, per ft. cube. ...	0	11	0
Dry African Mahogany, per ft. cube	0	10	0
Dry African Whitewood, per ft. cube.	0	8	0
Dry English Wainscot Oak, per ft. cube.	0	16	0
Best Scotch Glue, per cwt.	3	0	0
Liquid Glue, per cwt. ..... 4 7 0 to	5	10	0

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 × 11.	£38 10	3 × 6.	£31 10
4 × 9.	38 10	3 × 11.	38 10
4 × 8.	35 10	2 × 11.	38 10
4 × 7.	35 10	3 × 9.	37 10
3 × 8.	32 10	2½ × 9.	37 10
3 × 7.	31 10	3 × 4½	30 0
2½ × 7.	31 10	3 × 4.	30 0

Having secured the Contract— What about the Steel Scaffolding!



For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.

STEPHENS & CARTER LTD.

The British Steel Scaffolding Co.

Paddington Green, London, W.2.

Telephone No. PADDINGTON 7661 (6 lines).

PLANED BOARDS.

1 × 11.	£43 10	1 × 9.	£39 10

PLAIN EDGE FLOORING.

Inches.	Per sq.	Inches.	Per sq.
¾.	22/6	1¼.	38/-
¾.	25/-	1½.	42/6
1.	28/6		

TONGUED AND GROOVED FLOORING. Inches.	Per sq.	MATCHING (BEST) Inches.	Per sq.
1	29/-	⅝	23/-
1¼.	38/6	¾	25/-
1½.	43/-	1	29/-

Ins. BATTENS. s. d.
¾ × 2 per 100 ft. 2 9

SAWN LATHS. s. d.
Per bundle 2 6

SLATES.

First quality slates from Penrhyn or Portmadoc. carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£	s.	d.		£	s.	d.
24 by 12 ..	31	5	0	18 by 10	16	10	0
22 by 12 ..	26	5	0	18 by 9	14	17	6
22 by 11 ..	23	12	6	16 by 10 ..	14	7	6
20 by 12 ..	23	2	0	16 by 8 ..	11	6	0
20 by 10 ..	20	15	0				

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. ..... Per 1,000 f.o.r. London.

		£	s.	d.
Best machine-made tiles from Broseley or Staffordshire district.		£4	2	6
Ditto hand-made ditto		4	17	6
Ornamental ditto		5	2	6
Hip and valley tiles (per dozen)	Hand-made	0	8	6
	Machine-made.	0	8	0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

R.S. Joists, cut and fitted	£16	0	0
Plain Compound Girders	19	0	0
" " Stanchions	21	0	0
In Roof Work	25	0	0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£	s.	d.	Diameter.	£	s.	d.
¼ in.	16	12	6	⅜ in. to ½ in. ..	15	2	6
⅝ in.	15	12	6	⅝ in. to 2½ in.	14	12	6

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £10 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Standard Wrot. Mild Steel Tubes. and Tubulars. Sizes. ¼in. to ⅜in.	Standard Wrot. Mild Steel Tubes. and Tubulars. Sizes. ½in. to 2in.	Standard Flanges. Sizes. ½in. to 2in.	Standard Fittings.
	%	%	%	%
Gas	60	65	62½	58½
Water	57	62½	62½	55
Steam	53½	58½	51½	50
Gal, gas	50	55	51½	48½
Galv. water	45	50	43½	43½
Galv. steam	38½	43½	38½	40

C.I. HALF-ROUND GUTTERS—London Prices ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop. Ends
3 in.	1/2½	1/-	4d
3½ in.	1/3½	1/1½	4d.
4 in.	1/3½	1/2½	5½d.
4½ in.	1/4½	1/4½	6½d.
5 in.	1/7½	1/6½	7½d.

O.G. GUTTERS.

3 in.	1/6½	1/4	4½d.
3½ in.	1/8½	1/4	5½d.
4 in.	1/8½	1/4½	6½d.
4½ in.	1/9½	1/7½	7½d.
5 in.	2/3	1/10½	8½d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, angles.	stock Branches. stock angles.
2 in.	1/9½	1/2½	1/9½
2½ in.	1/10½	1/4½	2/2
3 in.	2/4	1/8½	2/7½
3½ in.	2/9½	2/1	3/0½
4 in.	3/2½	2/6	3/7½

NETT PRICES.

Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

	Pipe.	Bends, angle.	stock Branches. stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts. ..	3 0½	2 2	2 7½
2½ in. "	3 7½	2 5	3 3½
3 in. "	3 10½	2 7½	3 11
3½ in. "	3 11½	3 2½	4 6
4 in. "	4 3½	3 7½	5 2½

L.C.C. COATED DRAIN PIPES.—London Prices, ex Stock.

	Pipe.	Bends, angles.	stock Branches. stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9 ft. lengths cwt. qr. lbs.	4 8	5 6	8 9
4 in. " 1 1 20	6 7	6 3	11 0
5 in. " 1 2 22	8 3	11 3	17 0
6 in. " 2 0 6	9 9	13 0	21 3

Gaskin for jointing 65/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)

	Per ton. £ s. d.		London. £ s. d.
IRON—			
Common Bars	12 15 0 ..		13 15 0
Staffordshire Crown Bars—			
Good merchant quality	14 10 0	to	16 0 0
Staffordshire Marked Bars	18 0 0 ..		19 0 0
Mild Steel Bars	12 18 0 ..		13 18 0
Steel Bars, Ferro-Concrete quality, basic price	14 8 0 ..		15 8 0
Hoop iron, basic prices	14 8 0 ..		15 8 0
,, Galvanised	24 8 0 ..		26 8 0
IRON—	Per ton in London.		
Soft Steel Sheets, Black—	£ s. d.		£ s. d.
Ordinary sizes, to 20 g.	16 5 0 ..		17 5 0
,, ,, 24 g.	17 5 0 ..		18 5 0
,, ,, 26 g.	18 5 0 ..		19 5 0
Sheets, Flat, Best Soft Steel, C. R. and C.A. quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	17 10 0 ..		18 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	19 10 0 ..		20 10 0
No. 1 quality £4 per ton extra.			
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes 6 ft. to 9 ft. to 20 g.	18 5 0 ..		20 5 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18 15 0 ..		22 5 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	20 15 0 ..		22 15 0
Sheets, Gavanised, Flat, Best quality—			
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	19 5 0 ..		22 5 0
Best Soft Steel Sheets, 22 g. and 24 g.	20 5 0 ..		21 15 0
Best Soft Steel Sheets, 26 g.	21 15 0 ..		22 15 0
Cut Nails, 3 in. to 6 in.	19 0 0 ..		21 0 0
(Under 3 in. usual trade extras.)			

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	1 1
Strong sheet	,,	1 3
Thin	,,	1 4
Copper nails	,,	1 3
Copper wire	,,	1 3

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
29/- 45/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
40/- 59/- per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
31/- 44/6 75/- 175/- 250/- 396/- per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
42/6 65/- 102/- 195/- 210/- 510/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
7/6 9/- 14/- 24/- 37/6 54/- per doz.

HEAVY CROYDON BALL VALVES.

½ in. ¾ in. 1 in. 1¼ in. 1½ in.
33/6 55/6 85/- 165/- 237/- per doz.

CAPS AND SCREWS.

1¼ in. 1½ in. 2 in. 3 in. 3½ in. 4 in.
9/- 11/- 16/6 29/- 42/- 45/- per doz.

BRASS FERRULES OF SLEEVES.

1½ in. 2 in. 3 in. 3½ in. 4 in.
9/6 11/6 20/6 26/- 37/- per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

1¼ in. 1½ in. 2 in. 3 in.
8 lb. Lead P... 17/6 23/- 32/6 66/6 per doz.
8 lb. Lead S... 21/6 27/6 39/6 73/- per doz.

SOLDER.—Plumbers', 1/2, Tinmen's, 1/4, Blowpipe, 1/6 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in drums	per gallon	0 3 10
Boiled ,, ,, in drums	,,	0 4 2
Turpentine, in drums (10 gals.)	,,	0 6 0
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)		53 0 0
Extra for 1-cwt. kegs over 5-cwt. casks is		2/9 cwt.
GENUINE WHITE LEAD PAINT. "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots	per ton delivered	72 10 0
Red Lead, Dry (packages extra)	per ton	45 0 0
Best Linseed Oil Putty	per cwt.	0 15 0
Size. XD quality	fkn.	0 3 6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	,,	0 16 0
Fine Copal	,,	0 18 0
Pale Copal	,,	1 0 0
Pale Opal Carriage	,,	1 4 0
Best do.	,,	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	,,	0 18 0
Fine Copal Cabinet	,,	1 2 0
Fine Copal Flatting	,,	1 0 0
Hard Drying Oak	,,	0 18 0
Fine Hard Drying Oak	,,	0 19 6
Fine Copal Varnish	Inside	1 0 6
Pale do.	,,	1 12 0
Best do.	,,	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY AND SELECTED GLAZING QUALITY.

per ft. super.		per ft. super.
18 oz. O.Q.	2½d.	32 oz. O.Q. 5½d.
18 ,, S.Q.	2⅝d.	32 ,, S.Q. 6½d.
24 ,, O.Q.	3⅛d.	Obscured Sheet, 18 oz. 3d.
24 ,, S.Q.	3⅞d.	,, ,, 24 ,, 4½d.
26 ,, O.Q.	3⅝d.	Fluted 21 ,, 9d.
26 ,, S.Q.	4⅓d.	Em'lld 18 oz., 5½d., 24oz.6⅝d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ⅛ in.	5⅝d.
Rough cast double rolled, 3/16 in.	6⅜d.
Rough cast double rolled, ¼ in.	6⅜d.
Figured rolled, etc., white	6½d.
Figured rolled, etc., tinted	9½d.
Rolled Sheet	6d.
White rolled cathedral	6d.
Tinted rolled cathedral	8½d.

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ⅛ in. thick	0 10½
Wire Rolled, ⅛ in. thick	0 9½
Wired Cast, ⅛ in. thick	0 9½
"Calores" Sheet, 21 oz.	2 6
,, ,, 32 oz.	4 0
,, Cast, ⅛ in. thick	0 10
,, ,, 3/16 in. thick	1 0
,, ,, ¼ in. thick	1 2
"VITA" GLASS.	s. d.
Clearsheet—not exceeding 1 foot	1 0
,, ,, 2 feet	1 3
,, over 2 feet	1 9
Polished plate not exceeding 1 foot	1 6
,, ,, 2 feet	3 0
Cathedral—not exceeding 1 foot	1 0
,, larger size	1 6
Horticultural Sheet and Cathedral "Vita" Glass Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1 0
3/16 in. Wired Georgian Design. Sizes up to 96 inches long by up to 24 inches wide	2 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	34 10 0
Pipe in coils	35 0 0
Soil pipe	39 10 0
Compo pipe	41 5 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills, per ton £22 10 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from December 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/8½	1/8	1/7½	1/7	1/6½	1/6
Labourers	1/3½	1/3¼	1/2¾	1/2½	1/2	1/1¾

Aberdeen	A	Dumfriesshire	A³	Inverness	*	Perthshire	A²
Ayrshire	A	Dundee	A	Inverurie	A¹	Peterhead	A¹
Banff	B	Dunoon	A	Kincardineshire	A²	Renfrewshire	A
Berwickshire	A²	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A²
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A²
Doune	A	Forfarshire	A³	Moray and Nairn	B	Stewartry	A²
Dunblane	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²	Stornoway	A²
Dumfries	A¹	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

*This town has its own rates: Masons, 1/6½; Carpenters, 1/6½; Slaters, 1/6½; Plumbers, 1/7: Plasterers, 1/7½, but 1/8½ is paid owing to the scarcity at present; Painters, 1/6½ and Labourers, 1/2.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 888.

THE SCOTTISH BUILDER

NEW BUILDINGS

CHAPELHALL.—HOUSES.—Plans in hand for 28 houses. The architect is Mr. William Brown, Clydesdale-st.-chbrs., Hamilton.

DUNDEE.—FACTORIES, ETC.—Plans submitted to City Engineer for approval:—Anchor-lane, additions to factory, South Anchor and Jute Works, Ltd.; Bellfield-street, factory for Urquhart, Lindsay and Robertson Orchar, Ltd.; Commercial-street, air-raid shelter for Commercial Bank of Scotland, Ltd.

DUNDEE. — PREMISES. — Corporation Works Committee has granted permission to the Scottish Co-operative Wholesale Society to build a single-storey shop at the corner of Hilltown and Constitution-st.

EDDLEWOOD.—HOUSES.—Plans in hand for 40 houses, etc. The architect is Mr. Wm. Brown, Clydesdale-st.-chbrs., Hamilton.

GLASGOW. — BUILDING. — The Dean of Guild Court has granted permission to the management of the First Church of Christ, Scientist, Clifton-st., to carry out a scheme of reconstruction to provide more accommodation, at an estimated cost of £24,000. Messrs. A. McInnes, Gardner and Partners, architects, 237, West George-st., Glasgow, have planned a new internal lay-out. The Court also passed the following plans: Church of Scotland General Trustees, Edinburgh, church hall at the corner of Greenrigg-st. and Langdale-rd.

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Architectural Publishers,
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The Demand for Aluminium.

References to the present position of aluminium and its importance in armament production are made in a statement issued by a high executive of a leading firm in the aluminium industry. "Aluminium is playing a very big part to-day in war material production," says the statement. "All the metal available in this country is now urgently required for war work. Some concern has been expressed by a number of trades at the present lack of aluminium for industrial purposes. The aluminium industry is fully aware of the inconvenience that may be temporarily imposed on industrial manufacturers, but it will be appreciated that Service needs must come first. There is no doubt that the present demand for aluminium semi-manufactured products, such as sheet, tubes, structural sections and stampings, will result in the development of new and stronger alloys. Already, too, the increased production has resulted in reductions of manufacturing costs as the result of standardisation and experience gained with new processes and more up to date machinery."

TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Accrington.—Internal painting and decoration at St. Andrew's C. of E. School (infants' department), for T.C. H. Sanderson, B.E. Quantities by B.E. :—*Porters, 72, Market-st., Church.

Ashby-de-la-Zouch (Leics). — Extension to factory, for J. Ferguson, Ltd. Plans prepared by own staff :—*Orton & Son, Kilwardby-st., Ashby-de-la-Zouch; steelwork—*J. Thorp & Son, Ltd., Derby.

Barnstaple.—Repairs and external painting to Instow public conveniences, for R.D.C. S. P. Smith, Building S., The Red House, Castle-st. :—*J. Morrish and Sons, Bishops Tawton, £14 12s. 6d.

Belfast.—Branch for Provincial Bank of Ireland at Bradbury-pl. Blackwood and Jury, Ltd., architects, Belfast :—*H. & J. Martin, Ltd., Belfast.

Blackpool.—Emergency hospital, for M.H. : —*Caton & Duckworth, Ltd., William Henry-st., Blackburn.

Brecon.—960 yd. of 4-in. water main, for T.C. B.S., Steeple-ln. :—*Direct labour.

Bromsgrove.—(a) Painting council houses, and (b) cleansing station at Bromsgrove and Rubery, for U.D.C. F. W. Goodman, surveyor :—(a) 72 houses, Each Way and Woodrow-ln.—*E. Hobbiss, Bromsgrove, £9 10s. 6d. per house; 60 houses, Dragoon Fields and Burcot-ln.—*H. L. Wilton, 46, Worcester-st., Bromsgrove, £8 2s., £9 7s. and £9 6s. per house. (b) *J. & A. Brazier & Co., Ltd., Worcester-rd., Bromsgrove, £1,525; ‡Wm. Weaver, Ltd., The Strand, Bromsgrove, £1,396 2s. 5d.

Coventry.—Extensions to Church of All Souls, for Rev. T. H. Hampton, Kingsland-av., Earlsdon. E. Bower Norris, F.R.I.B.A., architect, 134, Newport-rd., Stafford :—Reinforced concrete work—*R. Holst & Co., Ltd., London; general contractors—*Frank Hickman & Son, Market Harborough; heating engineers—*Couzens and Akers, Birmingham, 6; electric light—*H. Pratt, Ltd., Birmingham, 6. (Estimated cost, £12,000.)

Donegal.—Surgery and improvements at the County infirmary, for County B.H. :—*J. Kelly, Carndonagh, £1,411 8s.

Dundee.—Fire-resisting screens and doors at new switch-house, Carolina Port generating station, for T.C. D. H. Bishop, General Manager and Engineer Electricity Department, Dudhope Crescent-rd. :—Joiner work, *J. Scott and Son, Dundee, £325 9s. 3d.; plumber work, *Jas. Robertson and Son, Dundee, £903 19s. 10d.; screens and doors, *Durasteel Roofs, Ltd., Greenford, £1,987 1s.

Dunmow.—Iron removal plant at Thaxted pumping station, for R.D.C. Edward Sandeman and Partners, consulting engineers, 15, Victoria-st., Westminster, S.W.1 :—†The Candy Filter Co., Hanwell, £2,495.

Durham.—Alterations to Hatfield Hall for students evacuated from Neville's Cross College, for C.C. :—*Goodyear & Son, Claypath, Durham.

Ellesmere.—Electric wiring to new council houses, for R.D.C. : — *Thomasson & Co. (Shrewsbury), Ltd., 45, High-st., Shrewsbury, £135.

Grimsby.—Tank house in works yard, Moss-rd., for C.B. S. R. Windle, Borough Electrical Engineer, Electricity Works, Moss-rd. : —*E. E. Dale & Sons, Ltd., 16, West-st., Cleethorpes.

Honiton.—Sewerage works at Colestocks and intake works and reservoir and water mains at Yarcombe, for R.D.C. R. B. Bailey, E. and S. :—Colestocks sewerage scheme—*King's Asphalt, Ltd., Basin Junction Works, Exeter, £626 3s. 5d.; Yarcombe water scheme —*C. P. Unwin & Son, 554, Holdenhurst-rd., Bournemouth, £550.

Kidsgrove.—9-in. and 12-in. dia. glazed earthenware sewer and manholes, at Goldenhill Bank, Kidsgrove, for distance of approximately 350 yd., for U.D.C. H. W. Crowther-Green, E. and S. :—

James Taylor, Tunstall ...	£726 15 0
John Hadfield & Sons, Ltd., Sheffield, 4	652 9 2
Staffordshire Public Works, South Wolfe-st., Stoke-on-Trent	557 11 8
A. E. Henshall & Co., Ltd., Trentham	557 1 2
P. Prendergast, Newcastle-u.-Lyne	531 6 8
*L. Bates, Bycars-rd., Burslem, Staffs	531 6 4

Kilkenny.—Panel heating system and domestic hot water service at County hospital, Kilkenny, for County Board of Health and Public Assistance. T. Kelly, B.E., consulting engineer, Central hospital, Kilkenny :—*McCanns, Ltd., 19-20, Ellis's-quay, Dublin, £9,470.

Kilkenny.—Construction of Callan sewerage scheme, consisting of the laying of 936-yd. 9-in. and 1,302 yd. 12-in. dia. sewers, and construction of manholes, settling tanks, syphon, pumping station, etc., for County Board of Health. T. Kelly, Engineer's Office, Central hospital, Kilkenny :—*W. Leahy, Thurles, Co. Tipperary, £7,674 15s. 3d.

Killorglin.—Provision of water supply, for Kerry County B.H. :—*J. Molloy & Sons, Ltd., Ballina, £7,382 4s. 3d.

Leeds.—(a) Installation of lift at Killingbeck Hospital, and (b) electrical work at 40 houses on Potternewton Estate, for T.C. :—(a) *Waygood-Otis, Ltd., 10, East Parade, Leeds, 1, £1,027; (b) *Ward & Co. (Dewsbury), Ltd., 15, Northgate, Dewsbury.

Limavady.—Waterworks at Ballykelly, for R.D.C. :—*W. Nutt, Claudy, £1,689.

¶London (War Department).—Contracts placed during the week ended December 19 :—Hampshire, building work, Crosby & Co., Ltd., Lion Works, West-st., Farnham; Hampshire, building work, Universal Housing Co., Ltd., Rickmansworth; Berkshire, building work, Boyd & Murley, Ltd., 87, London-rd., Reading; Buckinghamshire and Hampshire, hutting, H. C. Janes, Ltd., 189, Hightown-rd., Luton; Gloucestershire, hutting, Stone & Co., Ltd., Redland-rd., Bristol; Wiltshire, building work, Building & Public Works Construction Co., Ltd., 59, County-rd., Swindon; Wiltshire, building work, G. Shears & Sons, Ltd., Oxford-rd., Bournemouth, and Patching and Co., 7, Warwick-st., Worthing; Western Command, hutting, H. C. Janes, Ltd., 189, Hightown-rd., Luton; Midlothian, hutting, Cowiesons, Ltd., 3, Charles-st., St. Rollox, Glasgow; Yorkshire, concrete construction, F. Shepherd & Son, Ltd., Blue Bridge-ln., York; Yorkshire, heating installation, W. Freer, Ltd., 36-40, Wellington-st., Leicester; Midlothian and Northumberland, hutting, Cowiesons, Ltd., 3, Charles-st., Glasgow, N.; Morayshire, hutting, Alexander Hall & Son (Builders), Ltd., 15, Mid Stocket-rd., Aberdeen; Hampshire, maintenance, E. J. Logan, 138b, Westhill, Putney, S.W.15; Lancashire, heating installation, Matthew Hall & Co., Ltd., 26, Dorset-sq., London, N.W.1; Cheshire, heating installation, Carrier Engineering Co., Ltd., Bolney Court, Bolney, Sussex; Yorkshire, miscellaneous services, H. Morfitt & Son, Ltd., 16, St. Michael's-ln., Leeds, 6; London, building work, Leslie & Co., Ltd., St. James House, Kensington-sq., London, W.8; Hampshire, hutting, L. F. Richardson, Ltd., 34, Mount Ephraim-ln., Streatham, S.W.16; Essex, hutting, Geo. Wimpey & Co., Ltd., Hammersmith-gr., London, W.6.

Lough Salt.—Provision of water supply for Donegal County B.H. :—*White & Co., Ltd., Belfast, £20,982 8s. 10d.

Macclesfield.—Softening plants at Tytherington and London-rd. pumping stations (Contract No. 3), for T.C. Herbert Lapworth & Partners, engineers, 25, Victoria-st., Westminster, S.W.1 :—*Candy Filter Co., Ltd., Hanwell, London, W.7, £4,901.

Macclesfield.—Retaining wall in Hurdsfield-rd., for T.C. :—*B. Cooke, Buxton-rd., Macclesfield, £180 16s.

Manchester.—Bottling plant and store to brewery, Pineapple-st., Gorton, for Openshaw Brewery Co., Ltd., Brook-st. E. Ogden and Co., architects, 1, Ridgefield :—*E. B. Jones and Rawlinson, Ltd., 6, Leaf-sq., Pendleton, Salford, 6.

Manchester.—Sub-station to works, Norton-st., Hulme Hall-ln., Miles Platting, for West's Gas Improvements Co., Ltd., Albion Ironworks, Miles Platting—*Works Department, West's Gas Improvements Co., Ltd., Albion Ironworks, Miles Platting, Manchester, 10.

Manchester.—Cloth store to works, Grey-st. and Ogden-ln., Openshaw, for Lindsay & Williams, Ltd., cable makers, 1121, Ashton Old-rd. Wrathmell & Blackshaw, architects, Queens-buildings, St. Peters-sq., Stockport :—*Brown & Jones, 3, Carter-st., Ardwick, Manchester, 15.

Manchester.—Additions to Ice Palace, Derby-st., Cheetham, for Manchester Ice Palace, Ltd. H. S. Fairhurst & Son, architects, 55, Brown-st. :—*Tinker & Young, Ltd., Monsall-st., Collyhurst, Manchester, 9.

Manchester.—Electric power house to works, Pottery-ln., Openshaw, for Crossley Bros., Ltd., Pottery-ln., Openshaw. Plans prepared by own architects :—*G. & W. Smith (Builders), Ltd., Hyde-gr., Plymouth-gr., Longsight, Manchester, 12.

Manchester.—Baptist Sunday school, Crossacres-rd., Northern Etchells, for Manchester and District Baptist Assn., Milton Hall, Deansgate. F. H. Brazier, architect, 7, Market-st., Altrincham : — *Southern & Davies, Thorley-ln., Timperley, Ches.

Manchester.—Office and stores to works, Crabtree-ln., Clayton, for Eva Bros., Ltd., Crabtree Forge, Clayton. A. J. Hayland, architect, 32, King-st. West :—*D. Goodyear & Sons, Ltd., Abbey Works, Abbey Hey-ln., Openshaw, Manchester, 18.

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Manchester.—Additions to warehouse, Pollard-st. and Caledon-st., Ancoats, for Co-operative Wholesale Society, Ltd., Balloon-st. :—*Building Dept., Co-operative Wholesale Society, Ltd., Vere-st., Salford, 5.

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Margate.—Externally painting 100 houses on the Dane Valley estate, for T.C. :—

Operative Builders & Decorators, Ltd.	£750
F. Jones & Son	493
Baker & Sons	424
*P. Samson	297

Middleton.—Extensions to offices, Boarshaw Clough, for Chadwick & Smith, Ltd., bleachers. Plans prepared by own architects : —Builders—*H. Ogden & Co.; plumber—*W. E. Mellalieu; electric light—*Chadwick & Smith, Ltd. (All of Middleton.)

Morley.—Extension of Alexandra Mills, for W. B. Stockwell, Baker-st. A. Binks and J. C. Cannon, architects, 71, Queen-st. :—*Irving Ainsworth, 6, Britannia-rd., Morley, near Leeds.

Ormskirk.—Construction of brick filter-house and water tower at Springfield pumping station, Aughton, for Southport and District Water Board. Norman Jones & Rigby, FF.R.I.B.A., architects, Williams Deacons Bank-chambs., Lord-st., Southport :—*E. H. Bampton, Ltd., Black Moss-ln., Ormskirk, near Southport. (Cost, £7,554.)

Oxford.—Repairs for the year 1940, for T.C. :—‡E. Organ & Son and Symm & Co., Ltd.

Scotland.—150 lin. yd. of access road; supplying and laying 850 lin. yd. of 9-in. and 6-in. fireclay pipe sewers and constructing septic tank, filters, and relative works; and supplying and laying 530 lin. yd. of 3-in. dia. spun-iron water mains at Belmont Castle, Meigle, for Scottish Special Housing Association, Ltd. Parker, Gordon and Ogilvie, engineers, 3, Palmerston-pl., Edinburgh, 12 :—*Laird Bros., 13, Robertson-ter., Forfar.

Sheffield. — Works extension, Limestone Cottage-la., Wadsley Bridge, for Batchelors' Peas, Ltd., Johnson-la. :—*Reeves Charlesworth, Ltd., Holme-la., Sheffield.

Southampton.—Demolishing existing culvert and constructing new reinforced concrete bridge at Newgate-la., Fareham, for C.C. J. S. Hall, Acting County Surveyor, Winchester :—*Jno. Croad, Ltd., 98, High-st., Gosport.

Stourport.—Installation of heating apparatus at fire station, for U.D.C. L. Poole, S. : —*H. E. Pritchard & Son, Cobden-st., Kidderminster, £101 10s.

Thornaby.—Hotel for J. W. Cameron and Co. :—*J. C. Watson, Prudential-bldgs., Stockton.

York.—Shops, Dringhouses, for Co-operative Society, Ltd. Plans prepared in architects' department, Co-operative Wholesale Society, Ltd., 1, Balloon-st., Manchester :—*Building Dept., Vere-st., Salford, 5.

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